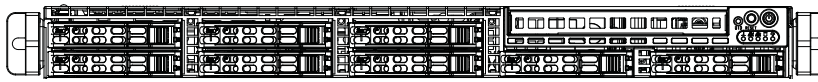
SUPERMICRO®

# SUPERSERVER 1027R-WRF



# USER'S MANUAL

Revision 1.0b

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Manual Revision 1.0b
Release Date: June 13, 2014

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# Preface

## About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SuperServer 1027R-WRF Installation and maintainance should be performed by experienced technicians only.

The SuperServer 1027R-WRF is a high-end server based on the SC113TQ-R700WB 1U rackmount chassis and the X9DRW-iF dual processor serverboard.

## Manual Organization

**Chapter 1: Introduction**

The first chapter provides a checklist of the main components included with the server system and describes the main features of the X9DRW-iF serverboard and the SC113TQ-R700WB chassis.

**Chapter 2: Server Installation**

This chapter describes the steps necessary to install the SuperServer 1027R-WRF into a rack and check out the server configuration prior to powering up the system. If your server was ordered without processor and memory components, this chapter will refer you to the appropriate sections of the manual for their installation.

**Chapter 3: System Interface**

Refer here for details on the system interface, which includes the functions and information provided by the control panel on the chassis as well as other LEDs located throughout the system.

**Chapter 4: Standardized Warning Statements for AC Systems**

You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed when installing and servicing the SuperServer 1027R-WRF.

**Chapter 5: Advanced Serverboard Setup**

Chapter 5 provides detailed information on the X9DRW-iF serverboard, including the locations and functions of connections, headers and jumpers. Refer to this chapter when adding or removing processors or main memory and when reconfiguring the serverboard.

**Chapter 6: Advanced Chassis Setup**

Refer to Chapter 6 for detailed information on the SC113TQ-R700WB server chassis. You should follow the procedures given in this chapter when installing, removing or reconfiguring SAS/SATA or peripheral drives and when replacing system power supply units and cooling fans.

**Chapter 7: BIOS**

The BIOS chapter includes an introduction to BIOS and provides detailed information on running the CMOS Setup Utility for the X9DRW-iF serverboard.

**Appendix A: BIOS Error Beep Codes**

**Appendix B: Installing Windows**

**Appendix C: System Specifications**

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## Notes

# Chapter 1

# Introduction

## 1-1 Overview

Supermicro's SUPERSERVER 1027R-WRF is a dual processor, 1U rackmount server. The 1027R-WRF is a high-end server comprised of two main subsystems: the SC113TQ-R700WB 1U server chassis and the X9DRW-iF dual processor serverboard. Please refer to our web site for information on operating systems that have been certified for use with the system (www.supermicro.com).

In addition to the serverboard and chassis, various hardware components have been included with the 1027R-WRF, as listed below:

- Two (2) 1U passive CPU heat sink (SNK-P0047PS)
- One (1) SC815/113/116 Intel DP X9, X8 PC air shroud (MCP-310-19002-0N)
- Five (5) 40x56mm 4-pin PWM fans (FAN-0086L4)
- One (1) 70-cm front control cable 20-pin-to-20-pin w/tube (CBL-0335L)
- SAS/SATA Accessories
  One (1) HD Backplane (BPN-SAS-113TQ-O-P)
  One (1) 30 AWG 70/60/50/50-cm, W/70-cm SB AOC connection cable (CBL-0288L-01)
  One (1) 30 AWG Ipass to 4SATA 90/90/70/70-cm W/70-cm SB AOC connection cable (CBL-0388L-01)
  Eight (8) 2.5" hot-swap hard disk drive trays (MCP-220-00047-0B)
- One (1) set outer rail for 1U chassis (MCP-290-00101-0N)
- One (1) set inner rail, front for 1U chassis (MCP-290-00107-0N)
- One (1) set inner rail, extension for 1U chassis (MCP-290-00111-0N)
- One (1) riser card (RSC-R1UW-2E16-O-P)

**Note:** For your system to work properly, please follow the links below to download all necessary drivers/utilities and the user's manual for your server.

- Supermicro product manuals: http://www.supermicro.com/support/manuals/
- Product drivers and utilities: ftp://ftp.supermicro.com
- Product safety information:
  http://super-dev/about/policies/safety_information.cfm
- If you have any questions, please contact our support team at:
  **support@supermicor.com**

## 1-2 Serverboard Features

At the heart of the SuperServer 1027R-WRF lies the X9DRW-iF, a dual processor serverboard based on the C602 chipset. Below are the main features of the X9DRW-iF. (See Figure 1-1 for a block diagram of the chipset).

### Processors

The X9DRW-iF supports single or dual E5-2600 series processors in Socket R LGA 2011 type sockets. Please refer to our web site for a complete listing of supported processors (www.supermicro.com).

### Memory

The X9DRW-iF has sixteen (16) single/dual/tri/quad channel 240-pin DIMM sockets that can support up to 512 GB of DDR3 1600/1333/1066/800 MHz speed registered ECC RDIMM/LRDIMM SDRAM in two-channel memory bus. Memory sizes of 512 MB, 1 GB, 2 GB, 4 GB, 8 GB, 16 GB or 32 GB size @ 1.35V/1.5V voltages are supported. Please refer to Chapter 5 for installing memory.

**Note:** LRDIMM (Reduced Load) memory supports only 1333/1066/800 MHz speed memory.

### Serial ATA

An on-chip (Intel PCH C602) SATA controller is integrated into the X9DRW-iF to provide a six-port SATA subsystem (two SATA 3.0 and four SATA 2.0 ports), which is RAID 0, 1, 5 and 10 (Windows SATA) or RAID 0, 1 and 10 (LINUX) supported. By default these SATA ports are not used in this server, but you can add optional cables to connect to these ports The SATA drives are hot-swappable units.

**Note:** You must have RAID set up to enable the hot-swap capability of the SATA drives. Documentation on RAID setup guidelines can be found on our web site.

### Onboard Controllers/Ports

The color-coded I/O ports on the X9DRW-iF include two COM ports (one header and one port), a VGA (monitor) port, six USB 2.0 ports (4x rear, 1x header for two front panel), two gigabit Ethernet ports and one dedicated IPMI LAN port.

**Note:** For more information on IPMI configuration, please refer to the IPMI User's Guide posted on our website at http://www.supermicro.com/support/manuals/

### Graphics Controller

The X9DRW-iF features an integrated Renesas Base-board Controller (BMC) chip, which also acts as a video controller.

### Other Features

Other onboard features that promote system health include onboard voltage monitors, auto-switching voltage regulators, chassis and CPU overheat sensors, power management, AC power loss recovery, virus protection and BIOS rescue.

## 1-3 Server Chassis Features

The SC113TQ-R700WB is Supermicro's third-generation 1U chassis and features eight 2.5" hard drive bays and two high-efficiency power supplies. The following is a general outline of the main features of the SC113TQ-R700WB chassis.

### System Power

When configured as a SuperServer 1027R-WRF, the SC113TQ-R700WB chassis includes two redundant 700 Watt power supplies.

### Hard Drive Subsystem

The SC113TQ-R700WB chassis was designed to support eight hot-swap SATA hard drives.

### PCI Expansion Slots

A riser card (RSC-R1UW-2E16-O-P) on the left side of the chassis can support two PCI-E x16 cards. See section 5-6 for further details.)

### Front Control Panel

The SC113TQ-R700WB control panel provides important system monitoring and control information. LEDs indicate power on, network activity, hard disk drive activity and a UID (Universal Information) LED. Also present are a main power button, a system reset button and a UID button.

### I/O Backplane

The SC113TQ-R700WB is an extended ATX form factor chassis that is designed to be used in a 1U rackmount configuration. Ports on the I/O backplane include one COM port, a VGA port, four USB 2.0 ports, two one-gigabit Ethernet ports and a dedicated IPMI LAN port. A UID (Unit Identifier) button and LED are also located beside the VGA port.

### Cooling System

The SuperServer 1027R-WRF has an innovative cooling design that features five sets of 4-cm counter-rotating fans located in the middle section of the chassis. There is a "Fan Speed Control Mode" setting in IPMI that allows chassis fan speed to be determined by system temperature. The power supply module also includes a cooling fan.

## 1-4 Advanced Power Management

### Intel® Intelligent Power Node Manager (NM)

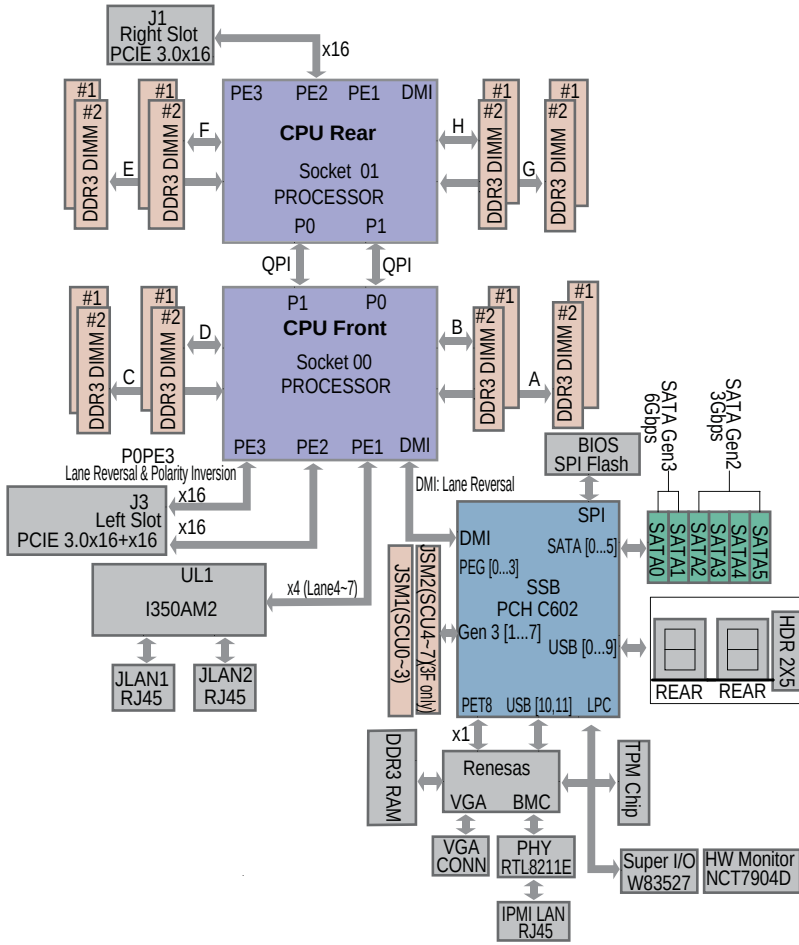
The Intel® Intelligent Power Node Manager (IPNM) provides your system with real-time thermal control and power management for maximum energy efficiency. Although IPNM Specification Version 1.5 is supported by the BMC (Baseboard Management Controller), your system must also have IPNM-compatible Manageability Engine (ME) firmware installed to use this feature.

### Manageability Engine (ME)

The Manageability Engine, which is an ARC controller embedded in the IOH (I/O Hub), provides Server Platform Services (SPS) to your system. The services provided by SPS are different from those proveded by the ME on client platforms.

**Figure 1-1. C602 Chipset:**
**System Block Diagram**

**Note:** This is a general block diagram. Please see Chapter 5 for details.



## 1-5 Contacting Supermicro

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| Email: | support@supermicro.com.tw |
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# Chapter 2

# Server Installation

## 2-1 Overview

This chapter provides a quick setup checklist to get your SuperServer 1027R-WRF up and running. Following these steps in the order given should enable you to have the system operational within a minimum amount of time. This quick setup assumes that your system has come to you with the processors and memory preinstalled. If your system is not already fully integrated with a serverboard, processors, system memory etc., please turn to the chapter or section noted in each step for details on installing specific components.

## 2-2 Unpacking the System

You should inspect the box the SuperServer 1027R-WRF was shipped in and note if it was damaged in any way. If the server itself shows damage you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold the SuperServer 1027R-WRF. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need it placed near a grounded power outlet. Be sure to read the Rack and Server Precautions in the next section.

## 2-3 Preparing for Setup

The box the SuperServer 1027R-WRF was shipped in should include two sets of rail assemblies, two rail mounting brackets and the mounting screws you will need to install the system into the rack. Follow the steps in the order given to complete the installation process in a minimum amount of time. Please read this section in its entirety before you begin the installation procedure outlined in the sections that follow.

### Choosing a Setup Location

- Leave enough clearance in front of the rack to enable you to open the front door completely (~25 inches) and approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing.This product is for installation only in a Restricted Access Location (dedicated equipment rooms, service closets and the like).
- This product is not suitable for use with visual display work place devices acccording to §2 of the the German Ordinance for Work with Visual Display Units.

## 2-4 Warnings and Precautions

**Warning!** To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

### Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack. In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a component from the rack.
- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

### Server Precautions

- Review the electrical and general safety precautions in Chapter 4.
- Determine the placement of each component in the rack *before* you install the rails.

- Install the heaviest server components on the bottom of the rack first, and then work up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the hot plug SATA drives and power supply modules to cool before touching them.
- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

## Rack Mounting Considerations

**Warning:** Do not pick up the server with the front handles. They are designed to pull the system from a rack only.

**Stability Hazard:** The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.

### *Ambient Operating Temperature*

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).

### *Reduced Airflow*

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

### *Mechanical Loading*

Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

### *Circuit Overloading*

Consideration should be given to the connection of the equipment to the power supply circuitry and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

### *Reliable Ground*

A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit (i.e. the use of power strips, etc.).

## 2-5 Installing the System into a Rack

This section provides information on installing the SuperServer 1027R-WRF into a rack. If the SuperServer 1027R-WRF has already been mounted into a rack, you can skip ahead to Sections 2-5 and 2-6.

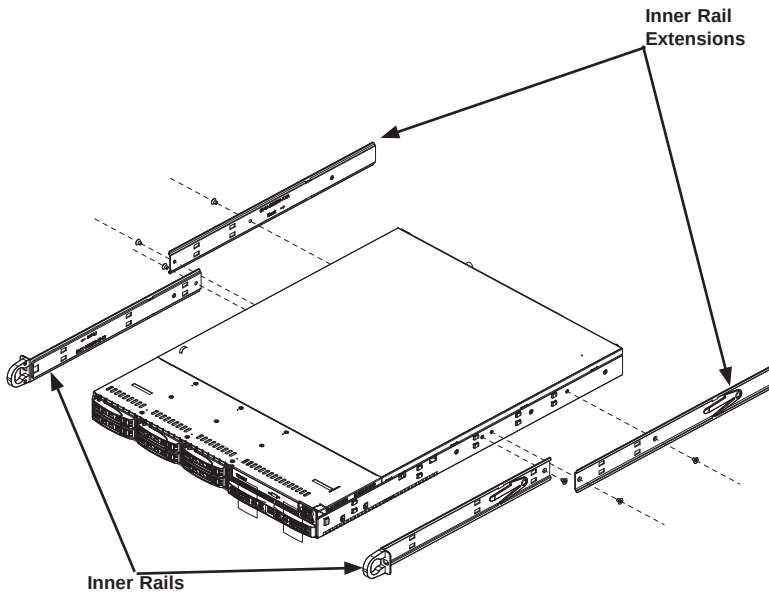
**Note:** This rail will fit a rack between 26" and 33.5" deep.

There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. The following is a guideline for installing the SuperServer 1027R-WRF into a rack with the rack rails provided. You should also refer to the installation instructions that came with the rack unit you are using.

### Identifying the Sections of the Rack Rails

Each assembly consists of two sections: an inner fixed chassis rail that secures directly to the server chassis and an outer fixed rack rail that secures directly to the rack itself.

**Figure 2-1. Identifying the Sections of the Rack Rails**



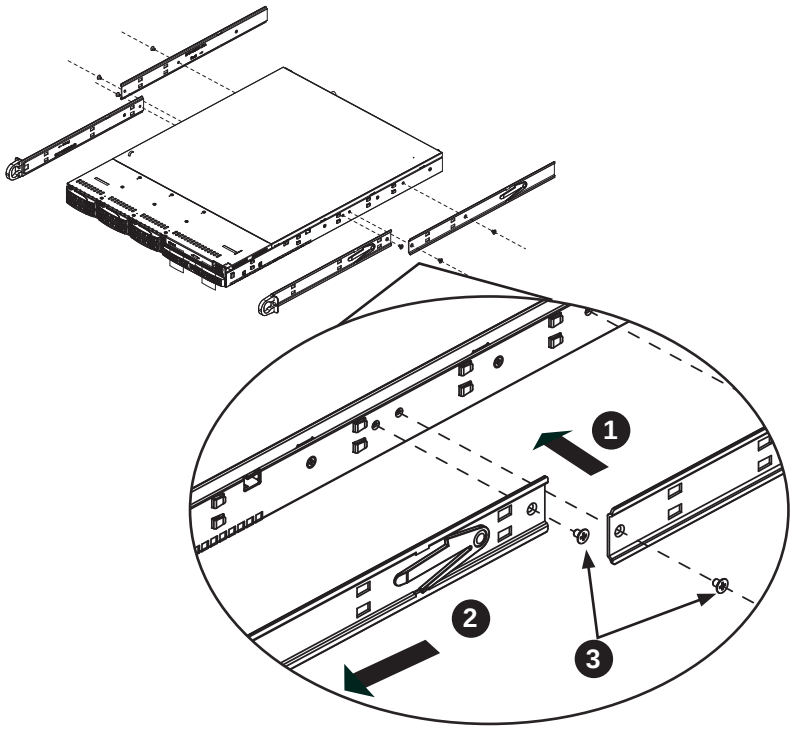
## Inner Rails

The SC113 chassis includes a set of inner rails in two sections: inner rails and inner rail extensions. The inner rails are pre-attached and do not interfere with normal use of the chassis if you decide not to use a server rack. Attach the inner rail extension to stabilize the chassis within the rack.

***Installing the Inner Rails (Figure 2-2)***

1. Place the inner rack extensions on the side of the chassis aligning the hooks of the chassis with the rail extension holes. Make sure the extension faces "outward" just like the pre-attached inner rail.
2. Slide the extension toward the front of the chassis.
3. Secure the chassis with two screws as illustrated.
4. Repeat steps 1-3 for the other inner rail extension.

**Figure 2-2. Installing Chassis Rails**



## Outer Rails

***Installing the Outer Rails to the Rack (Figures 2-3 and 2-4)***

1. Attach the short bracket to the outside of the long bracket. You must align the pins with the slides. Also, both bracket ends must face the same direction.
2. Adjust both the short and long brackets to the proper distance so that the rail fits snugly into the rack.
3. Secure the long bracket to the front side of the outer rail with two M5 screws and the short bracket to the rear side of the outer rail with three M5 screws.
4. Repeat steps 1-4 for the left outer rail.

**Figure 2-3. Assembling the Outer Rails**

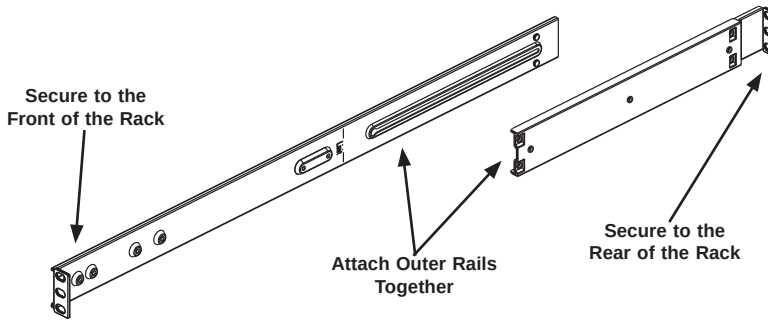
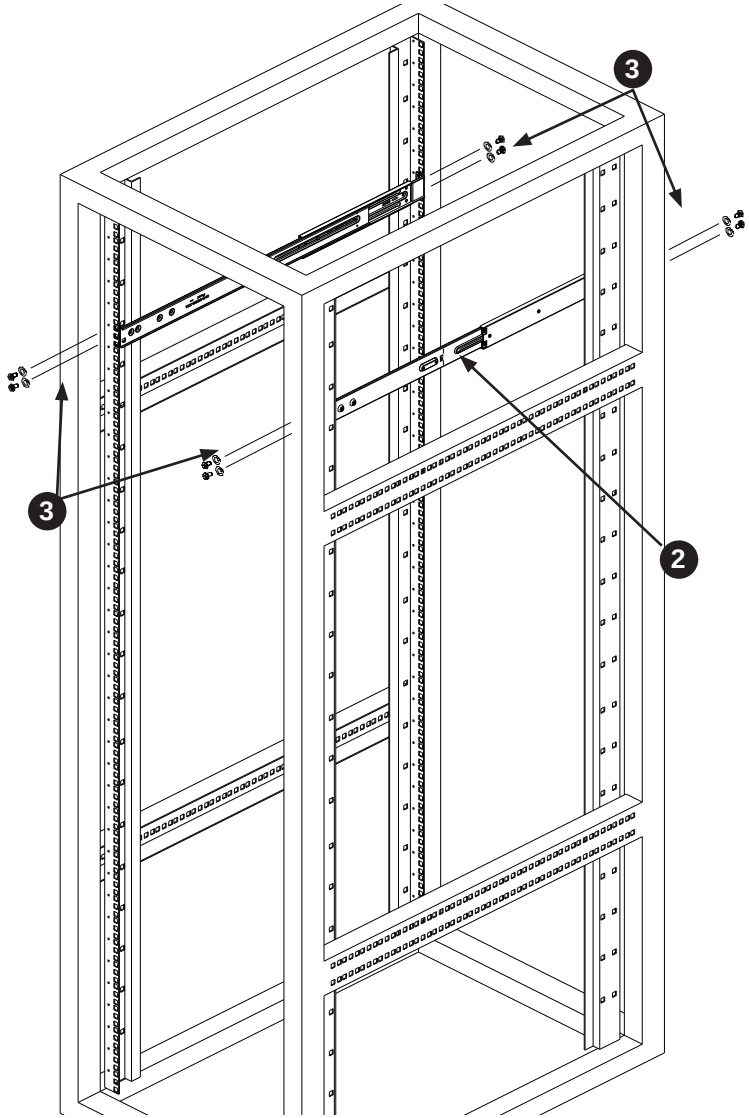


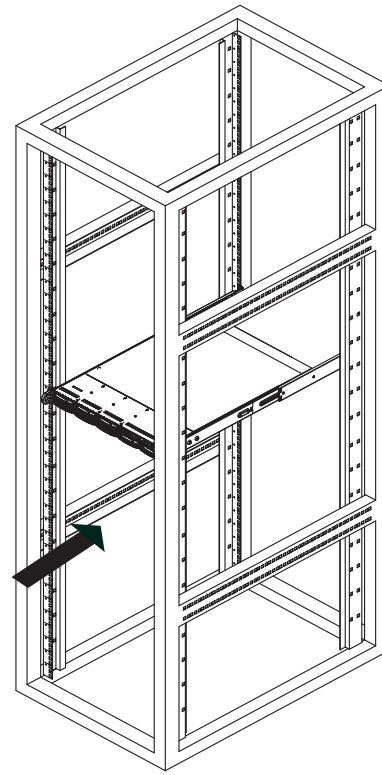
**Figure 2-4. Installing the Outer Rails to the Rack**



***Installing the Chassis into a Rack (Figure 2-5)***

1. Confirm that chassis includes the inner rails and rail extensions . Also, confirm that the outer rails are installed on the rack.
2. Line chassis rails with the front of the rack rails.
3. Slide the chassis rails into the rack rails, keeping the pressure even on both sides (you may have to depress the locking tabs when inserting). When the server has been pushed completely into the rack, you should hear the locking tabs "click".
4. (Optional) Insert and tightening the thumbscrews that hold the front of the server to the rack.

**Figure 2-5. Installing the Server into a Rack**



**Note:** The figure above is for illustrative purposes only. Always install servers to the bottom of the rack first.

## 2-6 Checking the Serverboard Setup

After you install the SuperServer 1027R-WRF in the rack, you will need to open the unit to make sure the serverboard is properly installed and all the connections have been made.

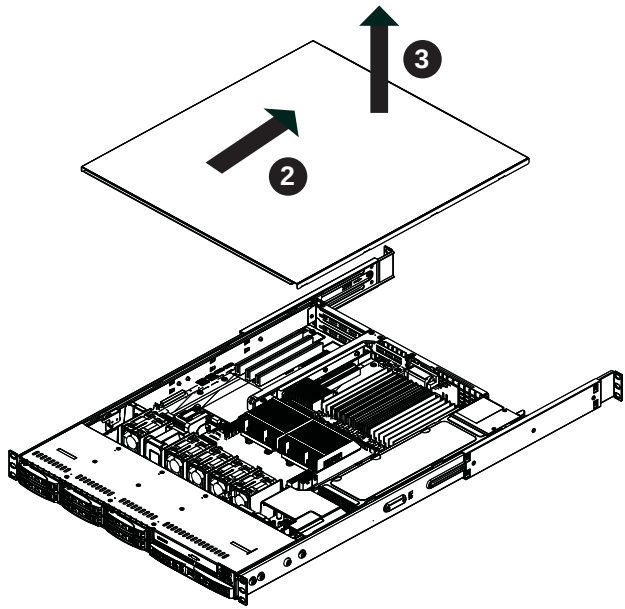
***Removing the Chassis Cover (Figure 2-5)***

1. Grasp the two handles on either side and pull the unit straight out until it locks (you will hear a "click").
2. Remove the screws securing the top cover to the chssis.
3. Slide the cover toward the rear of the chassis.
4. Lift the cover off the chassis.

***Checking the Components***

1. You should have one or two processors already installed into the serverboard. Each processor needs its own heatsink. See Chapter 5 for instructions on processor and heatsink installation.

**Figure 2-5: Removing the Chassis Cover**



2. Your SuperServer 1027R-WRF system may have come with system memory already installed. Make sure all DIMMs are fully seated in their slots. For details on adding system memory, refer to Chapter 5.
3. If desired, you can install add-on cards to the system. See Chapter 5 for details on installing PCI add-on cards.
4. Make sure all power and data cables are properly connected and not blocking the chassis airflow. See Chapter 5 for details on cable connections. Also, check the air seals for damage. The air seals are located under the blower fan and beneath the frame cross section that separates the drive bay area from the serverboard area of the chassis.

## 2-7 Checking the Drive Bay Setup

Next, you should check to make sure the hard drives have been properly installed and all connections have been made.

***Checking the Drives***

1. For servicing the hard drives, you will need to remove the top chassis cover.
2. If you need to remove or install hard drives, please refer to Chapter 6.

***Checking the Airflow***

1. Airflow is provided by four 4-cm counter-rotating fans. The system component layout was carefully designed to direct sufficient cooling airflow to the components that generate the most heat.
2. Note that all power and data cables have been routed in such a way that they do not block the airflow generated by the fans.

***Providing Power***

1. The last thing you must do is to provide input power to the system. Plug the power cord from the power supply unit into a high-quality power strip that offers protection from electrical noise and power surges. It is recommended that you use an uninterruptible power supply (UPS).
2. Finish by depressing the power button on the chassis control panel.

## Notes

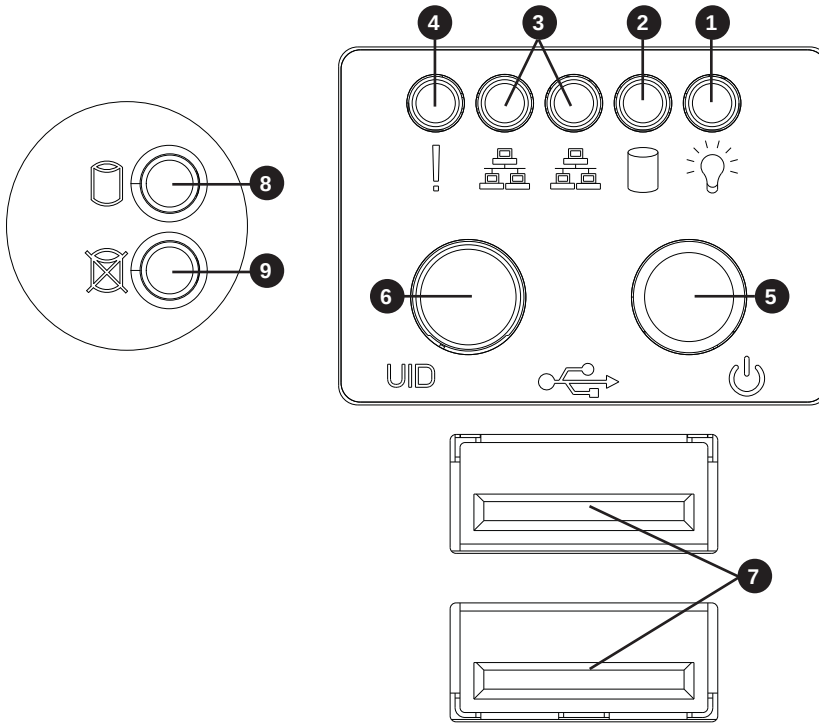
# Chapter 3

# System Interface

## 3-1 Overview

There are several LEDs on the control panel and on the drive carriers that provide system and component status for the 1027R-WRF server. This chapter explains the meanings of all LED indicators and the appropriate responses that need to be taken.

**Figure 3-1: System Interface**



| Server Interface Buttons and LEDs | |
|---|---|
| **No.** | **Description** |
| 1 | Power LED |
| 2 | Device Activity LED |
| 3 | LAN1/LAN2 LED |
| 4 | Universal Information LED |
| 5 | Power Button |
| 6 | UID Button |
| 7 | USB 2.0 Ports |
| 8 | Hard Drive Signal |
| 9 | Hard Drive Fail |

## 3-2 Control Panel Buttons

There are three buttons located on the front of the chassis: a reset button, a power on/off button and a UID button.

### Reset

Use the reset button to reboot the system.

### Power

This is the main power button, which is used to apply or turn off the main system power. Turning off system power with this button removes the main power but keeps standby power supplied to the system.

### UID

Depressing the UID (unit identifier) button illuminates an LED on both the front and rear of the chassis for easy system location in large stack configurations. The LED will remain on until the button is pushed a second time. Another UID button on the rear of the chassis serves the same function. See the table below for descriptions of UID LED states.

| Universal Information LED States | |
|---|---|
| **State** | **Indication** |
| Fast Blinking Red (1x/sec) | Fan Fail |
| Solid Red | CPU Overheat |
| Slow Blinking Red (1x/4 sec) | Power Fail |
| Solid Blue | Local UID Button Depressed |
| Blinking Blue | IPMI-Activated UID |

**Note:** deactivating the UID LED must be performed in the same way it was activated. (If the UID LED was activated via IPMI, you can only turn the LED off via IPMI and not with the UID button.)

## 3-3 Control Panel LEDs

The control panel located on the front of the SC113TQ-R700WB chassis has five LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.

### Information LED

See the following table for the status shown by this LED.

| Information LED | |
|---|---|
| **Status** | **Description** |
| Continously on and red | An overheat ocondition has occured. (This may be caused by cable congestion.) |
| Blinking red (1 Hz) | Fan failure: check for an inoperative fan. |
| Blinking red (0.25 Hz) | Power failure: check for an inoperative power supply. |
| Solid blue | Local UID has been activated. Use this function to locate the server in a rack environment. |
| Blinking blue (300 msec) | Remote UID has been activated. Use this function to locate the server from a remote location. |

### NIC2

Indicates network activity on LAN2 when flashing.

### NIC1

Indicates network activity on LAN1 when flashing.

### HDD

Indicates IDE channel activity when flashing.

### Power

Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.

## 3-4 Hard Drive Carrier LEDs

Each hard drive carrier has two LEDs.

- **Green:** When illuminated, the green LED on the front of the drive carrier indicates drive activity. A connection to the drive backplane enables this LED to blink on and off when that particular drive is being accessed.
- **Red:** The red LED indicates two states. When blinking, it indicates the drive is rebuilding. When solid, it indicates a drive failure. If a hard drive fails, you should be notified by your system management software. Please refer to Chapter 6 for instructions on replacing failed hard drives.

## 3-5 Power Supply LEDs

This chassis provides several options which may include hot-swappable, cold-swappable, and redundant power supplies. Some power supplies include an LED in the rear with the following definitions:

### 700W Power Supply LED

| 700W Power Supply LEDs | |
|---|---|
| **State** | **Indication** |
| Solid: Green | System is on. |
| Solid: Amber | System is off and plugged in or 5V stand by on. |
| Blinking: Amber (Only for 650W) | Power supply internal temperature has reached 63º Celsius, and will be shut down if the temperature reaches 70º Celsius. |

Each power supply has two LEDs.

- **Solid Green:** When illuminated, the green LED indicates that the power supply is on.
- **Solid Amber:** When illuminated, the amber LED indicates the power supply is plugged in and turned off, or the system is off but in an abnormal state.

## Notes

# Chapter 4

# Standardized Warning Statements for AC Systems

## 4-1 About Standardized Warning Statements

The following statements are industry standard warnings, provided to warn the user of situations which have the potential for bodily injury. Should you have questions or experience difficulty, contact Supermicro's Technical Support department for assistance. Only certified technicians should attempt to install or configure components.

Read this appendix in its entirety before installing or configuring components in the Supermicro chassis.

These warnings may also be found on our web site at http://www.supermicro.com/about/policies/safety_information.cfm.

### Warning Definition

**Warning!**

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.

**警告の定義**

**この警告サインは危険を意味します。**

**人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、**

**電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。**

此警告符号代表危险。

您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾的声明号码找到此设备的安全性警告说明的翻译文本。

此警告符號代表危險。

您正處於可能身體可能會受損傷的工作環境中。在您使用任何設備之前，請注意觸電的危險，並且要熟悉預防事故發生的標準工作程序。請依照每一注意事項後的號碼找到相關的翻譯說明內容。

Warnung

WICHTIGE SICHERHEITSHINWEISE

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS.

**תקנון הצהרות אזהרה**

הצהרות הבאות הן אזהרות על פי תקני התעשייה, על מנת להזהיר את המשתמש מפני חבלה פיזית אפשרית. במידה ויש שאלות או היתקלות בבעיה כלשהי, יש ליצור קשר עם מחלקת תמיכה טכנית של סופרמיקרו. טכנאים מוסמכים בלבד רשאים להתקין או להגדיר את הרכיבים.

יש לקרוא את הנספח במלואו לפני התקנת או הגדרת הרכיבים במארזי סופרמיקרו.

تحذير! هذا الرمز يعني خطر انك في حالة يمكن أن تتسبب في اصابة جسدية .
قبل أن تعمل على أي معدات،كن على علم بالمخاطر الناجمة عن الدوائر
الكهربائية
وكن على دراية بالممارسات الوقائية لمنع وقوع أي حوادث
استخدم رقم البيان المنصوص في نهاية كل تحذير للعثور ترجمتها

안전을 위한 주의사항

경고!

이 경고 기호는 위험이 있음을 알려 줍니다. 작업자의 신체에 부상을 야기 할 수 있는 상태에 있게 됩니다. 모든 장비에 대한 작업을 수행하기 전에 전기회로와 관련된 위험요소들을 확인하시고 사전에 사고를 방지할 수 있도록 표준 작업절차를 준수해 주시기 바랍니다.

해당 번역문을 찾기 위해 각 경고의 마지막 부분에 제공된 경고문 번호를 참조하십시오

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwings symbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij een elektrische installatie betrokken risico's en dient u op de hoogte te zijn van de standaard procedures om ongelukken te voorkomen. Gebruik de nummers aan het eind van elke waarschuwing om deze te herleiden naar de desbetreffende locatie.

BEWAAR DEZE INSTRUCTIES

## Installation Instructions

**Warning!**

Read the installation instructions before connecting the system to the power source.

**設置手順書**

**システムを電源に接続する前に、設置手順書をお読み下さい。**

警告

将此系统连接电源前,请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

Vor dem Anschließen des Systems an die Stromquelle die Installationsanweisungen lesen.

¡Advertencia!

Lea las instrucciones de instalación antes de conectar el sistema a la red de alimentación.

Attention

Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.

.יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

Raadpleeg de installatie-instructies voordat u het systeem op de voedingsbron aansluit.

## Circuit Breaker

**Warning!**

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 250 V, 20 A.

**サーキット・ブレーカー**

**この製品は、短絡（過電流）保護装置がある建物での設置を前提としています。**

**保護装置の定格が250 V、20 Aを超えないことを確認下さい。**

警告

此产品的短路(过载电流)保护由建筑物的供电系统提供,确保短路保护设备的额定电流不大于250V,20A。

警告

此產品的短路(過載電流)保護由建築物的供電系統提供,確保短路保護設備的額定電流不大於250V,20A。

Warnung

Dieses Produkt ist darauf angewiesen, dass im Gebäude ein Kurzschluss- bzw. Überstromschutz installiert ist. Stellen Sie sicher, dass der Nennwert der Schutzvorrichtung nicht mehr als: 250 V, 20 A beträgt.

¡Advertencia!

Este equipo utiliza el sistema de protección contra cortocircuitos (o sobrecorrientes) del edificio. Asegúrese de que el dispositivo de protección no sea superior a: 250 V, 20 A.

Attention

Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifiez que le courant nominal du dispositif de protection n'est pas supérieur à :250 V, 20 A.

**מוצר זה מסתמך על הגנה המותקנת במבנים למניעת קצר חשמלי. יש לוודא כי**
**המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-**250 V, 20 A

هذا المنتج يعتمد على معدات الحماية من الدوائر القصيرة التي تم تثبيتها في المبنى
تأكد من أن تقييم الجهاز الوقائي ليس أكثر من: 20A, 250V

경고!

이 제품은 전원의 단락(과전류)방지에 대해서 전적으로 건물의 관련 설비에 의존합니다. 보호장치의 정격이 반드시 250V(볼트), 20A(암페어)를 초과하지 않도록 해야 합니다.

Waarschuwing

Dit product is afhankelijk van de kortsluitbeveiliging (overspanning) van uw electrische installatie. Controleer of het beveiligde aparaat niet groter gedimensioneerd is dan 220V, 20A.

## Power Disconnection Warning

**Warning!**

The system must be disconnected from all sources of power and the power cord removed from the power supply module(s) before accessing the chassis interior to install or remove system components.

**電源切断の警告**

**システムコンポーネントの取り付けまたは取り外しのために、シャーシー内部にアクセスするには、**

**システムの電源はすべてのソースから切断され、電源コードは電源モジュールから取り外す必要があります。**

警告

在你打开机箱并安装或移除内部器件前，必须将系统完全断电，并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

Das System muss von allen Quellen der Energie und vom Netzanschlusskabel getrennt sein, das von den Spg.Versorgungsteilmodulen entfernt wird, bevor es auf den Chassisinnenraum zurückgreift, um Systemsbestandteile anzubringen oder zu entfernen.

¡Advertencia!

El sistema debe ser disconnected de todas las fuentes de energía y del cable eléctrico quitado de los módulos de fuente de alimentación antes de tener acceso el interior del chasis para instalar o para quitar componentes de sistema.

Attention

Le système doit être débranché de toutes les sources de puissance ainsi que de son cordon d'alimentation secteur avant d'accéder à l'intérieur du chassis pour installer ou enlever des composants de systéme.

## אזהרה מפני ניתוק חשמלי

**אזהרה !**
**יש לנתק את המערכת מכל מקורות החשמל ויש להסיר את כבל החשמלי מהספק לפני גישה לחלק הפנימי של המארז לצורך התקנת או הסרת רכיבים.**

يجب فصل النظام من جميع مصادر الطاقة وإزالة سلك الكهرباء من وحدة امداد الطاقة قبل
الوصول إلى المناطق الداخلية للهيكل لتثبيت أو إزالة مكونات الجهاز

경고!

시스템에 부품들을 장착하거나 제거하기 위해서는 섀시 내부에 접근하기 전에 반드시 전원 공급장치로부터 연결되어있는 모든 전원과 전기코드를 분리해주어야 합니다.

Waarschuwing

Voordat u toegang neemt tot het binnenwerk van de behuizing voor het installeren of verwijderen van systeem onderdelen, dient u alle spanningsbronnen en alle stroomkabels aangesloten op de voeding(en) van de behuizing te verwijderen

## Equipment Installation

**Warning!**

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

**機器の設置**

**トレーニングを受け認定された人だけがこの装置の設置、交換、またはサービスを許可されています。**

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet werden.

¡Advertencia!

Solamente el personal calificado debe instalar, reemplazar o utilizar este equipo.

Attention

Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés.

**אזהרה !**

**צוות מוסמך בלבד רשאי להתקין, להחליף את הציוד או לתת שירות עבור הציוד.**

يجب أن يسمح فقط للموظفين المؤهلين والمدربين لتركيب واستبدال أو خدمة هذا الجهاز

경고!

훈련을 받고 공인된 기술자만이 이 장비의 설치, 교체 또는 서비스를 수행할 수 있습니다.

Waarschuwing

Deze apparatuur mag alleen worden geïnstalleerd, vervangen of hersteld door geschoold en gekwalificeerd personeel.

## Restricted Area

**Warning!**

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. (This warning does not apply to workstations).

**アクセス制限区域**

**このユニットは、アクセス制限区域に設置されることを想定しています。**

**アクセス制限区域は、特別なツール、鍵と錠前、その他のセキュリティの手段を用いてのみ出入りが可能です。**

警告

此部件应安装在限制进出的场所，限制进出的场所指只能通过使用特殊工具、锁和钥匙或其它安全手段进出的场所。

警告

此裝置僅限安裝於進出管制區域，進出管制區域係指僅能以特殊工具、鎖頭及鑰匙或其他安全方式才能進入的區域。

Warnung

Diese Einheit ist zur Installation in Bereichen mit beschränktem Zutritt vorgesehen. Der Zutritt zu derartigen Bereichen ist nur mit einem Spezialwerkzeug, Schloss und Schlüssel oder einer sonstigen Sicherheitsvorkehrung möglich.

¡Advertencia!

Esta unidad ha sido diseñada para instalación en áreas de acceso restringido. Sólo puede obtenerse acceso a una de estas áreas mediante la utilización de una herramienta especial, cerradura con llave u otro medio de seguridad.

Attention

Cet appareil doit être installée dans des zones d'accès réservés. L'accès à une zone d'accès réservé n'est possible qu'en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité.

**אזור עם גישה מוגבלת**

**אזהרה !**
**יש להתקין את היחידה באזורים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת כלי אבטחה בלבד (מפתח, מנעול וכד').**

تم تخصيص هذه الوحدة لتركيبها في مناطق محظورة .
يمكن الوصول إلى منطقة محظورة فقط من خلال استخدام أداة خاصة،
قفل ومفتاح أو أي وسيلة أخرى للأمان

경고!

이 장치는 접근이 제한된 구역에 설치하도록 되어있습니다. 특수도구, 잠금 장치 및 키, 또는 기타 보안 수단을 통해서만 접근 제한 구역에 들어갈 수 있습니다.

Waarschuwing

Dit apparaat is bedoeld voor installatie in gebieden met een beperkte toegang. Toegang tot dergelijke gebieden kunnen alleen verkregen worden door gebruik te maken van speciaal gereedschap, slot en sleutel of andere veiligheidsmaatregelen.

## Battery Handling

**Warning!**

There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions

**電池の取り扱い**

**電池交換が正しく行われなかった場合、破裂の危険性があります。交換する電池はメーカーが推奨する型、または同等のものを使用下さい。使用済電池は製造元の指示に従って処分して下さい。**

警告

电池更换不当会有爆炸危险。请只使用同类电池或制造商推荐的功能相当的电池更换原有电池。请按制造商的说明处理废旧电池。

警告

電池更換不當會有爆炸危險。請使用製造商建議之相同或功能相當的電池更換原有電池。請按照製造商的說明指示處理廢棄舊電池。

Warnung

Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr. Ersetzen Sie die Batterie nur durch den gleichen oder vom Hersteller empfohlenen Batterietyp. Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.

Attention

Danger d'explosion si la pile n'est pas remplacée correctement. Ne la remplacer que par une pile de type semblable ou équivalent, recommandée par le fabricant. Jeter les piles usagées conformément aux instructions du fabricant.

¡Advertencia!

Existe peligro de explosión si la batería se reemplaza de manera incorrecta. Reemplazar la batería exclusivamente con el mismo tipo o el equivalente recomendado por el fabricante. Desechar las baterías gastadas según las instrucciones del fabricante.

**אזהרה !**
**קיימת סכנת פיצוץ של הסוללה במידה והוחלפה בדרך לא תקינה. יש להחליף את הסוללה בסוג התואם מחברת יצרן מומלצת.**

**סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.**

هناك خطر من انفجار في حالة استبدال البطارية بطريقة غير صحيحة فعليك استبدال البطارية
فقط بنفس النوع أو ما يعادلها كما أوصت به الشركة المصنعة
تخلص من البطاريات المستعملة وفقا لتعليمات الشركة الصانعة

경고!

배터리가 올바르게 교체되지 않으면 폭발의 위험이 있습니다. 기존 배터리와 동일하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사의 안내에 따라 사용된 배터리를 처리하여 주십시오.

Waarschuwing

Er is ontploffingsgevaar indien de batterij verkeerd vervangen wordt. Vervang de batterij slechts met hetzelfde of een equivalent type die door de fabrikant aanbevolen wordt. Gebruikte batterijen dienen overeenkomstig fabrieksvoorschriften afgevoerd te worden.

## Redundant Power Supplies

**Warning!**

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.

**冗長電源装置**
**このユニットは複数の電源装置が接続されている場合があります。**
**ユニットの電源を切るためには、すべての接続を取り外さなければなりません。**

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

Dieses Gerät kann mehr als eine Stromzufuhr haben. Um sicherzustellen, dass der Einheit kein trom zugeführt wird, müssen alle Verbindungen entfernt werden.

¡Advertencia!

Puede que esta unidad tenga más de una conexión para fuentes de alimentación. Para cortar por completo el suministro de energía, deben desconectarse todas las conexiones.

Attention

Cette unité peut avoir plus d'une connexion d'alimentation. Pour supprimer toute tension et tout courant électrique de l'unité, toutes les connexions d'alimentation doivent être débranchées.

**אם קיים יותר מספק אחד**

**אזהרה !**
ליחדה יש יותר מחיבור אחד של ספק. יש להסיר את כל החיבורים על מנת לרוקן את היחידה.

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة.
يجب إزالة كافة الاتصالات لعزل الوحدة عن الكهرباء

경고!

이 장치에는 한 개 이상의 전원 공급 단자가 연결되어 있을 수 있습니다. 이 장치에 전원을 차단하기 위해서는 모든 연결 단자를 제거해야만 합니다.

Waarschuwing

Deze eenheid kan meer dan één stroomtoevoeraansluiting bevatten. Alle aansluitingen dienen verwijderd te worden om het apparaat stroomloos te maken.

## Backplane Voltage

**Warning!**

Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.

**バックプレーンの電圧**

**システムの稼働中は危険な電圧または電力が、バックプレーン上にかかっています。修理する際には注意ください。**

警告

当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

Wenn das System in Betrieb ist, treten auf der Rückwandplatine gefährliche Spannungen oder Energien auf. Vorsicht bei der Wartung.

¡Advertencia!

Cuando el sistema está en funcionamiento, el voltaje del plano trasero es peligroso. Tenga cuidado cuando lo revise.

Attention

Lorsque le système est en fonctionnement, des tensions électriques circulent sur le fond de panier. Prendre des précautions lors de la maintenance.

**מתח בפנל האחורי**

**אזהרה !**
**קיימת סכנת מתח בפנל האחורי בזמן תפעול המערכת. יש להיזהר במהלך העבודה.**

هناك خطر من التيار الكهربائي أوالطاقة الموجودة على اللوحة
عندما يكون النظام يعمل كن حذرا عند خدمة هذا الجهاز

경고!

시스템이 동작 중일 때 후면판 (Backplane)에는 위험한 전압이나 에너지가 발생합니다. 서비스 작업 시 주의하십시오.

Waarschuwing

Een gevaarlijke spanning of energie is aanwezig op de backplane wanneer het systeem in gebruik is. Voorzichtigheid is geboden tijdens het onderhoud.

## Comply with Local and National Electrical Codes

**Warning!**

Installation of the equipment must comply with local and national electrical codes.

**地方および国の電気規格に準拠**
**機器の取り付けはその地方および国の電気規格に準拠する必要があります。**

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

La instalacion del equipo debe cumplir con las normas de electricidad locales y nacionales.Attention

L'équipement doit être installé conformément aux normes électriques nationales et locales.

**תיאום חוקי החשמל הארצי**

**אזהרה !**

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقوانين المحلية والوطنية المتعلقة بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

Bij installatie van de apparatuur moet worden voldaan aan de lokale en nationale elektriciteitsvoorschriften.

## Product Disposal

**Warning!**

Ultimate disposal of this product should be handled according to all national laws and regulations.

**製品の廃棄**

**この製品を廃棄処分する場合、国の関係する全ての法律・条例に従い処理する必要があります。**

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.

¡Advertencia!

Al deshacerse por completo de este producto debe seguir todas las leyes y reglamentos nacionales.

Attention

La mise au rebut ou le recyclage de ce produit sont généralement soumis à des lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.

**סילוק המוצר**

**אזהרה !**
**סילוק סופי של מוצר זה חייב להיות בהתאם להנחיות וחוקי המדינה.**

عند التخلص النهائي من هذا المنتج ينبغي التعامل معه وفقا لجميع القوانين واللوائح الوطنية

경고!

이 제품은 해당 국가의 관련 법규 및 규정에 따라 폐기되어야 합니다.

Waarschuwing

De uiteindelijke verwijdering van dit product dient te geschieden in overeenstemming met alle nationale wetten en reglementen.

## Easy Swap Fan Warning

**Warning!**

The fans might still be turning when you remove the fan assembly from the chassis. Keep fingers, screwdrivers, and other objects away from the openings in the fan assembly's housing.

**ファン・ホットスワップの警告**

**シャーシから冷却ファン装置を取り外した際、ファンがまだ回転している可能性があります。ファンの開口部に、指、ドライバー、およびその他のものを近づけないで下さい。**

警告

当您从机架移除风扇装置，风扇可能仍在转动。小心不要将手指、螺丝起子和其他物品太靠近风扇

警告

當您從機架移除風扇裝置，風扇可能仍在轉動。小心不要將手指、螺絲起子和其他物品太靠近風扇。

Warnung

Die Lüfter drehen sich u. U. noch, wenn die Lüfterbaugruppe aus dem Chassis genommen wird. Halten Sie Finger, Schraubendreher und andere Gegenstände von den Öffnungen des Lüftergehäuses entfernt.

¡Advertencia!

Los ventiladores podran dar vuelta cuando usted quite ell montaje del ventilador del chasis. Mandtenga los dedos, los destornilladores y todos los objetos lejos de las aberturas del ventilador

Attention

Il est possible que les ventilateurs soient toujours en rotation lorsque vous retirerez le bloc ventilateur du châssis. Prenez garde à ce que doigts, tournevis et autres objets soient éloignés du logement du bloc ventilateur.

**אזהרה !**
**כאשר מסירים את חלקי המאוורר מהמארז, יתכן והמאווררים עדיין עובדים. יש להרחיק למרחק בטוח את האצבעות וכלי עבודה שונים מהפתחים בתוך המאוורר**

من الممكن أن المراوح لا تزال تدورعند إزالة كتلة المروحة من الهيكل يجب إبقاء الأصابع ومفكات البراغي
وغيرها من الأشياء بعيدا عن الفتحات في كتلة المروحة.

경고!

새시로부터 팬 조립품을 제거할 때 팬은 여전히 회전하고 있을 수 있습니다. 팬 조림품 외관의 열려있는 부분들로부터 손가락 및 스크류드라이버, 다른 물체들이 가까이 하지 않도록 배치해 주십시오.

Waarschuwing

Het is mogelijk dat de ventilator nog draait tijdens het verwijderen van het ventilatorsamenstel uit het chassis. Houd uw vingers, schroevendraaiers en eventuele andere voorwerpen uit de buurt van de openingen in de ventilatorbehuizing.

## Power Cable and AC Adapter

**Warning!**

When installing the product, use the provided or designated connection cables, power cables and AC adaptors. Using any other cables and adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL or CSA -certified cables (that have UL/CSA shown on the code) for any other electrical devices than products designated by Supermicro only.

**電源コードとACアダプター**

**製品を設置する場合、提供または指定された接続ケーブル、電源コードとACアダプターを使用下さい。他のケーブルやアダプタを使用すると故障や火災の原因になることがあります。電気用品安全法は、ULまたはCSA認定のケーブル(UL/CSEマークがコードに表記)を Supermicroが指定する製品以外に使用することを禁止しています。**

警告

安装此产品时,请使用本身提供的或指定的连接线,电源线和电源适配器.使用其它线材或适配器可能会引起故障或火灾。除了Supermicro所指定的产品,电气用品和材料安全法律规定禁止使用未经UL或CSA认证的线材。(线材上会显示UL/CSA符号)。

警告

安裝此產品時,請使用本身提供的或指定的連接線,電源線和電源適配器.使用其它線材或適配器可能會引起故障或火災。除了Supermicro所指定的產品,電氣用品和材料安全法律規定禁止使用未經UL或CSA認證的線材。(線材上會顯示UL/CSA符號)。

Warnung

Bei der Installation des Produkts, die zur Verfügung gestellten oder benannt Anschlusskabel, Stromkabel und Netzteile. Verwendung anderer Kabel und Adapter kann zu einer Fehlfunktion oder ein Brand entstehen. Elektrische Geräte und Material Safety Law verbietet die Verwendung von UL-oder CSA-zertifizierte Kabel, UL oder CSA auf der Code für alle anderen elektrischen Geräte als Produkte von Supermicro nur bezeichnet gezeigt haben.

¡Advertencia!

Al instalar el producto, utilice los cables de conexión previstos o designados, los cables y adaptadores de CA. La utilización de otros cables y adaptadores podría ocasionar un mal funcionamiento o un incendio. Aparatos Eléctricos y la Ley de Seguridad del Material prohíbe el uso de UL o CSA cables certificados que tienen UL o CSA se muestra en el código de otros dispositivos eléctricos que los productos designados por Supermicro solamente.

Attention

Lors de l'installation du produit, utilisez les bables de connection fournis ou désigné. L'utilisation d'autres cables et adaptateurs peut provoquer un dysfonctionnement ou un incendie. Appareils électroménagers et de loi sur la sécurité Matériel interdit l'utilisation de UL ou CSA câbles certifiés qui ont UL ou CSA indiqué sur le code pour tous les autres appareils électriques que les produits désignés par Supermicro seulement.

**חשמליים ומתאמי AC**

**אזהרה !**

**כאשר מתקינים את המוצר, יש להשתמש בכבלים, ספקים ומתאמים AC אשר נועדו וסופקו לשם כך. שימוש בכל כבל או מתאם אחר יכול לגרום לתקלה או קצר חשמלי. על פי חוקי שימוש במכשירי חשמל וחוקי בטיחות, קיים איסור להשתמש בכבלים המוסמכים ב- UL או ב- CSA (כשאר מופיע עליהם קוד של UL/CSA) עבור כל מוצר חשמלי אחר שלא צוין על ידי סופרקמיקרו בלבד.**

عند تركيب الجهاز يجب استخدام كابلات التوصيل،والكابلات الكهربائية
ومحولات التيار المتردد
التي . أن استخدام أي كابلات ومحولات أخرى يتسبب في حدوث عطل أو حريق.
تم توفيرها لك مع المنتج
الأجهزة الكهربائية ومواد قانون السلامة يحظر استخدام الكابلات CSA أو UL
معتمدة من قبل
لأي أجهزة كهربائية أخرى غير المنتجات المعينة من قبل Supermicro
(التي تحمل علامة UL/CSA)

경고!

제품을 설치할 때에는 제공되거나 지정된 연결케이블과 전원케이블, AC어댑터를 사용해야 합니다. 그 밖의 다른 케이블들이나 어댑터들은 고장 또는 화재의 원인이 될 수 있습니다. 전기용품안전법 (Electrical Appliance and Material Safety Law)은 슈퍼마이크로에서 지정한 제품들 외에는 그 밖의 다른 전기 장치들을 위한 UL또는 CSA에서 인증한 케이블(전선 위에 UL/CSA가 표시)들의 사용을 금지합니다.

Waarschuwing

Bij het installeren van het product, gebruik de meegeleverde of aangewezen kabels, stroomkabels en adapters. Het gebruik van andere kabels en adapters kan leiden tot een storing of een brand. Elektrisch apparaat en veiligheidsinformatiebladen wet verbiedt het gebruik van UL of CSA gecertificeerde kabels die UL of CSA die op de code voor andere elektrische apparaten dan de producten die door Supermicro alleen.

# Chapter 5

# Advanced Serverboard Setup

This chapter covers the steps required to install processors and heatsinks to the X9DRW-iF serverboard, connect the data and power cables and install add-on cards. All serverboard jumpers and connections are described and a layout and quick reference chart are included in this chapter. Remember to close the chassis completely when you have finished working on the serverboard to protect and cool the system sufficiently.

## 5-1 Handling the Serverboard

Static electrical discharge can damage electronic components. To prevent damage to printed circuit boards, it is important to handle them very carefully (see Chapter 4). Also note that the size and weight of the serverboard can cause it to bend if handled improperly, which may result in damage. To prevent the serverboard from bending, keep one hand under the center of the board to support it when handling.

The following measures are generally sufficient to protect your equipment from static discharge.

### Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing any board from its antistatic bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the serverboard, add-on cards and peripherals back into their antistatic bags when not in use.

### Unpacking

The serverboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure the person handling it is static protected.

## 5-2 Processor and Heatsink Installation

**Warning**! When handling the processor package, avoid placing direct pressure on the label area.

**Warning!** Always connect the power cord last, and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket before you install the CPU heatsink.

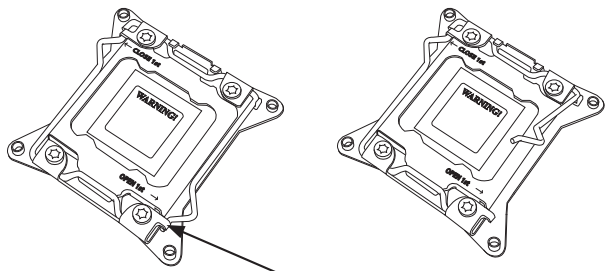
**Important!** If you buy a CPU separately, make sure that you use an Intel-certified multi-directional heatsink only.

**Notes:**

- Make sure to install the system board into the chassis before you install the CPU heatsink.
- When receiving a server board without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.
- Refer to the Supermicro website for updates on CPU support.

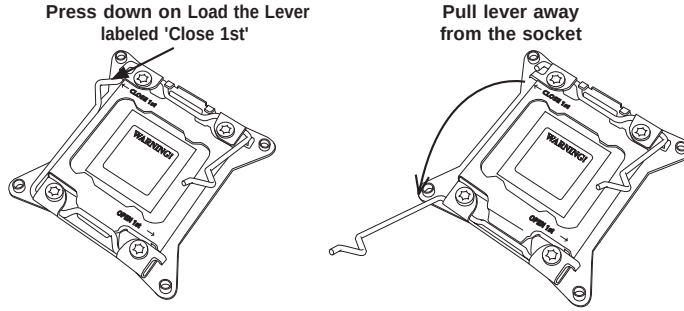
***Installing the LGA2011 Processor***

1. There are two load levers on the LGA2011 socket. To open the socket cover, first press and release the load lever labeled 'Open 1st'.

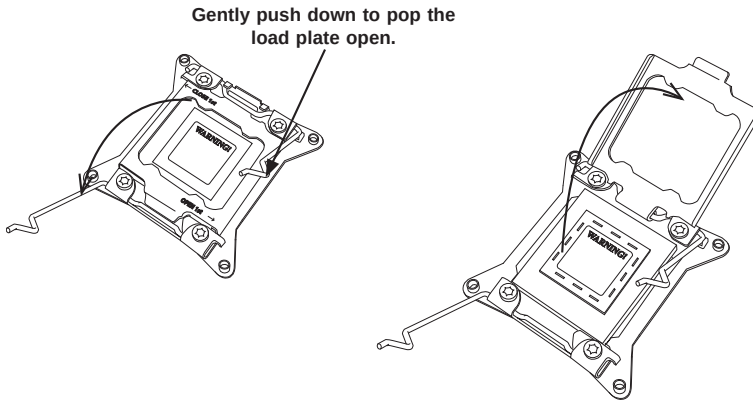



**Press down on Load Lever labeled 'Open 1st'.**

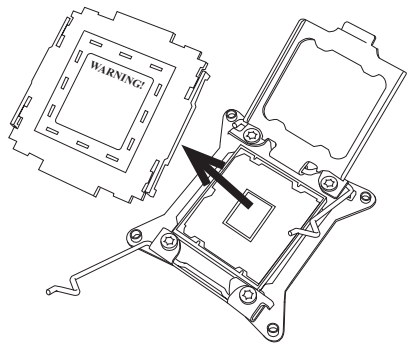
2. Press the second load lever labeled 'Close 1st' to release the load plate that covers the CPU socket from its locking position.



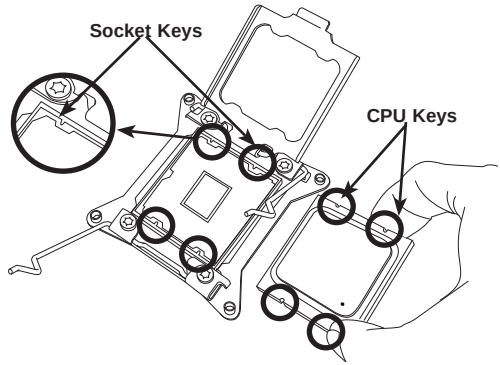

3. With the lever labeled 'Close 1st' fully retracted, gently push down on the 'Open 1st' lever to open the load plate. Lift the load plate to open it completely.



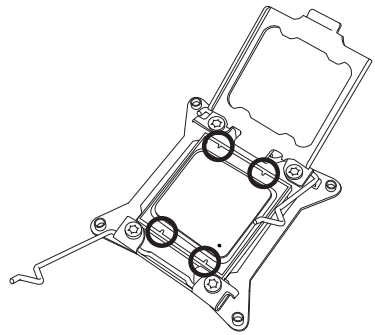

4. Using your thumb and the index finger, remove the 'WARNING' plastic cap from the socket.



5. Use your thumb and index finger to hold the CPU on its edges. Align the CPU keys, which are semi-circle cutouts, against the socket keys.

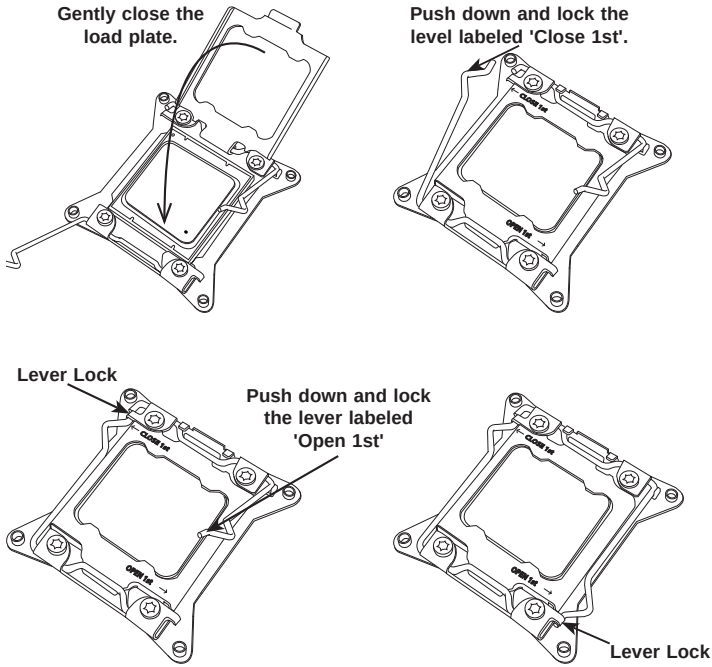



6. Once they are aligned, carefully lower the CPU straight down into the socket. (Do not drop the CPU on the socket. Do not move the CPU horizontally or vertically. Do not rub the CPU against the surface or against any pins of the socket to avoid damaging the CPU or the socket.)



**Caution:** You can only install the CPU inside the socket in one direction. Make sure that it is properly inserted into the CPU socket before closing the load plate. If it doesn't close properly, do not force it as it may damage your CPU. Instead, open the load plate again and double-check that the CPU is aligned properly.

7. With the CPU inside the socket, inspect the four corners of the CPU to make sure that the CPU is properly installed.
8. Close the load plate with the CPU inside the socket. Lock the lever labeled 'Close 1st' first, then lock the lever labeled 'Open 1st' second. Use your thumb to gently push the load levers down to the lever locks.


Gently close the load plate.
Push down and lock the level labeled 'Close 1st'.
Lever Lock
Push down and lock the lever labeled 'Open 1st'
Lever Lock

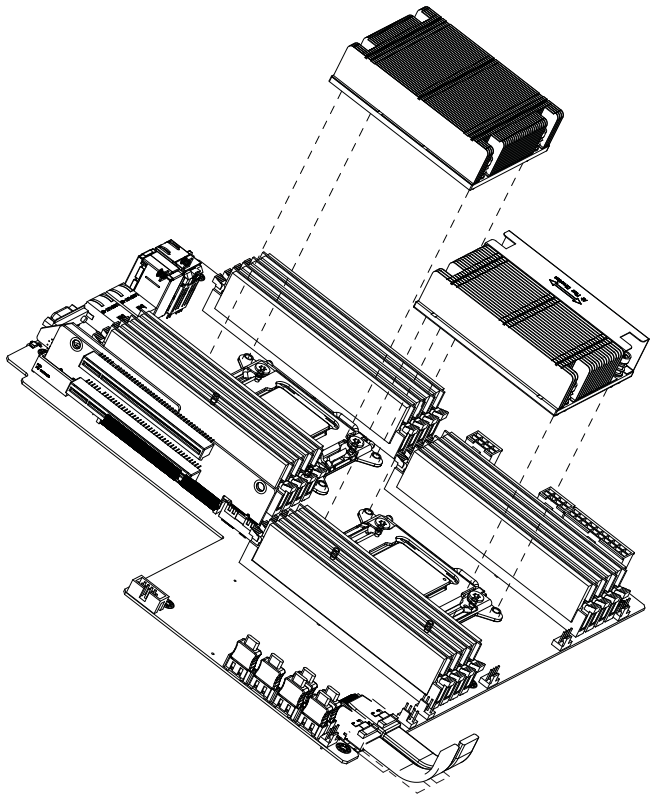
## Installing a Passive CPU Heatsink

1. Do not apply any thermal grease to the heatsink or the CPU die -- the required amount has already been applied.
2. Place the heatsink on top of the CPU so that the four mounting holes are aligned with those on the serverboard's and the Heatsink Bracket underneath.

   **Note:** The direction of the fins on the heatsink should align with the direction of the airflow in your system.
3. Screw in two diagonal screws (i.e., the #1 and the #2 screws) until just snug (-do not over-tighten the screws to avoid possible damage to the CPU.)
4. Finish the installation by fully tightening all four screws.

**Note:** The heatsink with the air tunnel (SNK-P0047PSC) needs to be at the CPU1 location with the air tunnel facing to the right (when looking from the front of the system) in order to increase the airflow for CPU2 heat sink (SNK-P0047PS).

**Figure 5-1. Installing the Heatsinks**



### Removing the Heatsink

**Caution:** We do not recommend that the CPU or the heatsink be removed. However, if you do need to uninstall the heatsink, please follow the instructions below to uninstall the heatsink to prevent damage done to the CPU or the CPU socket.

1. Unscrew the heatsink screws from the serverboard in the sequence as shown in the illustration below.
2. Gently wriggle the heatsink to loosen it from the CPU. (Do not use excessive force when wriggling the heatsink!)
3. Once the heatsink is loosened, remove it from the CPU socket.
4. Remove the used thermal grease and clean the surface of the CPU and the heatsink, Reapply the proper amount of thermal grease on the surface before reinstalling the CPU and the heatsink.

## 5-3 Connecting Cables

Now that the processors are installed, the next step is to connect the cables to the serverboard. These include the data (ribbon) cables for the peripherals and control panel and the power cables.

### Connecting Data Cables

The cables used to transfer data from the peripheral devices have been carefully routed in preconfigured systems to prevent them from blocking the flow of cooling air that moves through the system from front to back. If you need to disconnect any of these cables, you should take care to reroute them as they were originally after reconnecting them (make sure the red wires connect to the pin 1 locations). If you are configuring the system, keep the airflow in mind when routing the cables.

The following data cables (with their connector locations noted) should be connected. See the serverboard layout diagram in this chapter for connector locations.

- Control Panel cable (JF1, see next page)
- (Optional) Six SATA cables (i-SATA 0~5) (**Note:** these cables are not provided or connected with the SuperServer 1027R-WRF)

### Connecting Power Cables

The X9DRW-iF has a pre-conneted 24-pin primary power supply connector designated "JPW1" for connection to the ATX power supply. This cable connects the power supply to the JPW1 connector on the serverboard. See the Connector Definitions section in this chapter for power connector pin definitions.

In addition, your power supply must be connected to the two 8-pin and one 4-pin Processor Power connectors at JPW3/3 and JPW4.

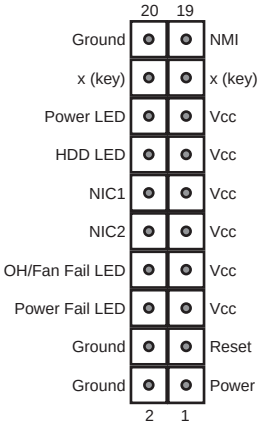
## Connecting the Control Panel

The pre-connected JF1 contains header pins for various front control panel connectors. See Figure 5-1 for the pin locations of the various front control panel buttons and LED indicators. Even and odd numbered pins are on opposite sides of each header.

All JF1 wires have been bundled into single keyed ribbon cable to simplify their connection. The red wire in the ribbon cable plugs into pin 1 of JF1. Connect the other end of the cable to the Control Panel printed circuit board, located just behind the system status LEDs in the chassis.

See the Connector Definitions section in this chapter for details and pin descriptions of JF1.

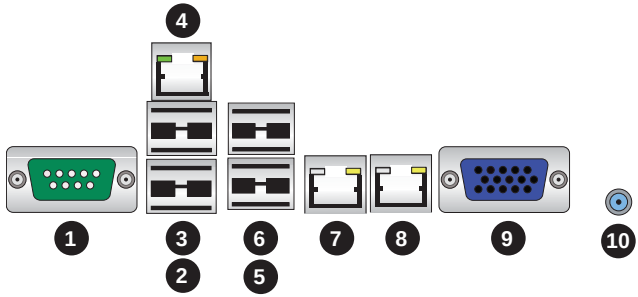
**Figure 5-2. Front Control Panel Header Pins (JF1)**



## 5-4 I/O Ports

The I/O ports are color coded in conformance with the PC 99 specification. See Figure 5-2 below for the colors and locations of the various I/O ports.

**Figure 5-3. Rear Panel I/O Ports**




| Rear I/O Ports | |
|---|---|
| 1. COM Port 1 (Turquoise) | 6. Back Panel USB Port 3 |
| 2. Back Panel USB Port 0 | 7. Gigabit LAN 1 |
| 3. Back Panel USB Port 1 | 8. Gigabit LAN 2 |
| 4. IPMI_Dedicated LAN | 9. Back Panel VGA (Blue) |
| 5. Back Panel USB Port 2 | 10. UID Button |

## 5-5 Installing Memory

**Caution!** Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

### Memory Support

The X9DRW-iF supports up to 512 GB of registered ECC 512 MB, 1 GB, 2 GB, 4 GB, 8 GB, 16 GB or 32 GB size size SDRAM in sixteen (16) DIMM slots of up to DDR3 1600/1333/1066/800 MHz speed. See the following table for memory installation.

Memory speed support is dependent on the type of CPU used on the board.

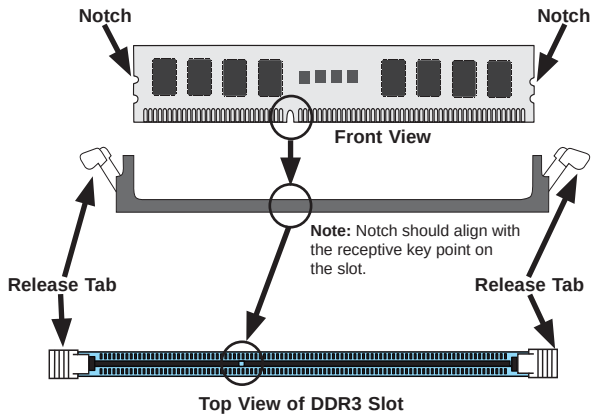
***Installing Memory Modules***

1. Insert the desired number of DIMMs into the memory slots, starting with DIMMA1. For best memory performance, please install memory modules of the same type and same speed on the memory slots as indicated on the tables below.
2. Insert each DIMM module vertically into its slot. Pay attention to the notch along the bottom of the module to avoid installing incorrectly (see Figure 5-3).
3. Gently press down on the DIMM module until it snaps into place in the slot. Repeat for all modules.

**Figure 5-4. Installing DIMM into Slot**

**To Install:** Insert module vertically and press down until it snaps into place. Pay attention to the alignment notch at the bottom.

**To Remove:** Use your thumbs to gently push the release tabs near both ends of the module. This should release it from the slot.



| Processors and their Corresponding Memory Modules | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **CPU#** | **Corresponding DIMM Modules** | | | | | | | |
| **CPU 1** | P1-DIMMA1 | P1-DIMMA2 | P1-DIMMB1 | P1-DIMMB2 | P1-DIMMC1 | P1-DIMMC2 | P1-DIMMD1 | P1-DIMMD2 |
| **CPU2** | P2-DIMME1 | P2-DIMME2 | P2-DIMMF1 | P2-DIMMF2 | P2-DIMMG1 | P2-DIMMG2 | P2-DIMMH1 | P2-DIMMH2 |

| Processor and Memory Module Population | |
|---|---|
| **Number of CPUs+DIMMs** | **CPU and Memory Population Configuration Table (*For memory to work proper, please install DIMMs in pairs)** |
| **1 CPU & 2 DIMMs** | CPU1<br>P1-DIMMA1/P1-DIMMB1 |
| **1 CPU & 4 DIMMs** | CPU1<br>P1-DIMMA1/P1-DIMMB1, P1-DIMMC1/P1-DIMMD1 |
| **1 CPU & 5~8 DIMMs** | CPU1<br>P1-DIMMA1/P1-DIMMB1, P1-DIMMC1/P1-DIMMD1, P1-DIMMA2/P1-DIMMB2, P1-DIMMC2/P1-DIMMD2 |
| **2 CPUs & 4 DIMMs** | CPU1 + CPU2<br>P1-DIMMA1/P1-DIMMB1, P2-DIMME1/P2-DIMMF1 |
| **2 CPUs & 6 DIMMs** | CPU1 + CPU2<br>P1-DIMMA1/P1-DIMMB1, P2-DIMME1/P2-DIMMF1, P1-DIMMC1/P1-DIMMD1 |
| **2 CPUs & 8 DIMMs** | CPU1 + CPU2<br>P1-DIMMA1/P1-DIMMB1, P2-DIMME1/P2-DIMMF1, P1-DIMMC1/P1-DIMMD1, P2-DIMMG1/P2-DIMMH1 |
| **2 CPUs & 9~12 DIMMs** | CPU1/CPU2<br>P1-DIMMA1/P1-DIMMB1, P2-DIMME1/P2-DIMMF1, P1-DIMMC1/P1-DIMMD1, P2-DIMMG1/P2-DIMMH1, P1-DIMMA2/P1-DIMMB2, P2-DIMME2/P2-DIMMF2 |
| **2 CPUs & 13 DIMMs~16 DIMMs** | CPU1/CPU<br>P1-DIMMA1/P1-DIMMB1, P2-DIMME1/P2-DIMMF1, P1-DIMMC1/P1-DIMMD1, P2-DIMMG1/P2-DIMMH1, P1-DIMMA2/P1-DIMMB2, P2-DIMME2/P2-DIMMF2, P1-DIMMC2/P1-DIMMD2, P2-DIMMG2/P2-DIMMH2 |

| UDIMM Support on the Intel E5-2600 Series Processor Platform | | | |
|---|---|---|---|
| **DIMMs Populated per DDR Channel** | **UDIMM Type (Unb. DIMM)** | **POR Speeds (in MHz)** | **Ranks per DIMM (Any Combination)** |
| 1 | ECC/Non-ECC DDR3 | 1066, 1333 | SR, DR |
| 2 | ECC/Non-ECC DDR3 | 1066, 1333 | SR, DR |

| RDIMM Support on the Intel E5-2600 Series Processor Platform | | | |
|---|---|---|---|
| **DIMMs Populated per DDR Channel** | **RDIMM Type (Reg. DIMM)** | **POR Speeds (in MHz)** | **Ranks per DIMM (Any Combination)** |
| 1 | Reg. ECC DDR3 | 1066, 1333, 1600 | SR, DR |
| 2 | Reg. ECC DDR3 | 1066, 1333,1600 | SR, DR |
| 1 | Reg. ECC DDR3 | 1066 | QR |
| 2 | Reg. ECC DDR3 | 800 | QR |

| LRDIMM Support on the Intel E5-2600 Series Processor Platform | | | |
|---|---|---|---|
| **DIMMs Populated per DDR Channel** | **LRDIMM Type (Load Reduced DIMM)** | **POR Speeds (in MHz)** | **Ranks per DIMM (Any Combination)** |
| 1 | LR ECC DDR3 | 1066, 1333 | QR |
| 2 | LR ECC DDR3 | 1066, 1333 | QR |

*Other Notes and Restrictions*

- For the memory modules to work properly, please install DIMM modules in pairs (with even number of DIMMs installed).
- All channels in a system will run at the fastest common frequency.
- Due to memory allocation to system devices, the amount of memory that remains available for operational use will be reduced when 4 GB of RAM is used. The reduction in memory availability is disproportional. See the following table for details.

## 5-6 Adding PCI Expansion Cards

**PCI Expansion Slots**

One riser card is used to support PCI expansion cards in the system. The riser card can support two full-height, 6.6" length PCI-Express x16 expansion cards.

***Installing a PCI Add-on Card***

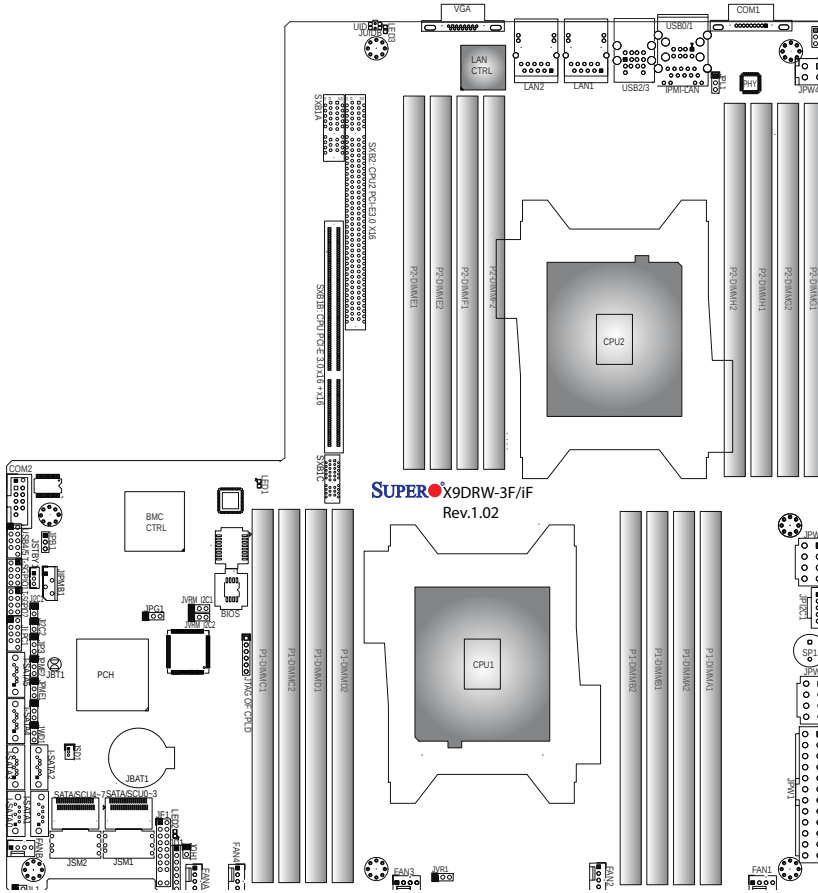
1. Remove the chassis cover.
2. Release the locking tab that corresponds to the PCI slot shield for the slot you wish to populate.
3. Insert the expansion card into the riser card, pushing down with your thumbs evenly on both sides of the card.
4. Slide the add-on card into the riser card and attach the add-on card bracket in place of the PCI slot shield.
5. Secure the add-on card by closing the PCI slot shield lever.
6. Connect cables to the add-on card as necessary.

**Note:** If the left side riser is with 2 or more x8 PCI-E slots make sure an installed card on the left side riser is detected. If it is not, then go to the system's BIOS Setup and in Advanced/ PCI/PnP Configuration /SXB1 Configuration BIOS setting select the [2x8] option. Then save the BIOS setting changes and reboot the system.

## 5-7 Serverboard Details

**Figure 5-5. X9DRW-iF Serverboard Layout**

(not drawn to scale)




**Notes:**

- Jumpers/LED Indicators not indicated are for testing only.
- Use only the correct type of onboard CMOS battery as specified by the manufacturer. Do not install the onboard battery upside down to avoid possible explosion. See Chapter 4 for correct battery type.

| X9DRW-iF Quick Reference | | |
|---|---|---|
| **Jumper** | **Description** | **Default Setting** |
| JBT1 | Clear CMOS | See Chapter 3 |
| JI2C1/JI2C2 | SMB to PCI-E Slots | Open (Normal) |
| JPB1 | BMC Enable | Pins 1-2 (Enabled) |
| JPG1 | VGA Enable | Pins 1-2 (Enabled) |
| JPL1 | LAN1/LAN2 Enable | Pins 1-2 (Enabled) |
| JWD1 | Watch Dog | Pins 1-2 (Reset) |

| **LED** | **Description** | **State** | **Status** |
|---|---|---|---|
| LED1 | BMC | Green: Blinking | Normal |
| LED2 | Power LED | Green: On | SB Power On |
| LED3 | UID LED | Blue: On | Unit Identified |

| Connector | Description |
|---|---|
| COM1/COM2 | Backplane COM Port1/Front Accessible COM2 Header |
| FAN1~4,FANA, FANB | CPU/System Fan Headers |
| I-SATA 0~5 | Intel PCH SATA Connectors 0~5 |
| JBAT1 | Onboard Battery (See Chpt. 4 for Used Battery Disposal) |
| JD1 | Speaker/Power LED Connector (Pins 1~3: PWR LED, Pins 6~7: Onboard Buzzer/Pins 4~7: External Speaker) |
| JF1 | Front Panel Control Header |
| JIPMB1 | 4-pin External BMC I2C Header (for an IPMI Card) |
| JL1 | Chassis Intrusion |
| JLPC1 | Port80 Header |
| JOH1 | Overheat/Fan Fail LED |
| JPI2C1 | Power Supply SMBbus I2C Header |
| JPW1 | ATX 24-Pin Power Connector (See Warning on Pg. 1-6) |
| JPW2/3 | 12V 8-Pin Power Connectors (See Warning on Pg. 1-6) |
| JPW4 | 12V 4-Pin Power Connector (See Warning on Pg. 1-6) |
| JSD1 | SATA DOM (Device_On_Module) Power Connector |
| JSTBY1 | Standby Power Connector |
| LAN1/2 | G-bit Ethernet Ports 1/2 |
| (IPMI) LAN | IPMI_Dedicated LAN |
| SATA/SCU 0~3, 4~7 | Serial_Link SATA/SCU Connections 0~3, 4~7 (for X9DRW-3F), SCU 0~3 (for X9DRW-iF) |
| SP1 | Onboard Buzzer (Internal Speaker) |
| SXB1A | SMC-Proprietary SPEC Slot (See Note 1 below.) |
| SXB1B | SMC-Proprietary PCI-E 3.0 x16 + x16 Add-on Card Slot (Left) (See Note 1 below.) |
| SXB1C | SMC-Proprietary SPEC Slot (See Note 1 below.) |
| SXB2 | SMC-Proprietary PCI-E 3.0 x16 Add-on Card Slot (Right) (See Note 2) |
| T-SGPI0 1/2 | Serial-Link General_Purpose IO Headers 1/2 |
| USB 0/1, 2/3 | Back Panel USB 0/1, 2/3 Ports |
| USB 4/5 | Front Panel Accessible USB 4/5 Connections |
| UID Switch | UID (Unit Identifier) Switch |

**Note 1:** For SXB1A/SXB1B/SXB1C PCI-Exp. slots to work properly, please use an SMC-proprietary riser card (eg. RSC-RIUW-2E16) in the slots.

**Note 2:** For SXB2 PCI-Exp. slot to work properly, please use the SMC-proprietary riser card RSC-R2UW-2EBR or RSC-R1UW-E8R in the slot.

**Note 3:** Components not documented are reserved for internal use only.

**Warning!** To prevent damage to the power supply or serverboard, please use a power supply that contains a 24-pin, two 8-pin and one 4-pin power connectors. Be sure to connect these power supply connectors to the 24-pin power connector (JPW1), the two 8-pin power connectors (JPW2, JPW3) and the one 4-pin power connector (JPW4) on the serverboard. Failure in doing so will void the manufacturer warranty on your power supply and serverboard.

## 5-8 Connector Definitions

### Power Connectors

A 24-pin main power supply connector(JPW1), two 8-pin CPU power connectors (JPW2/JPW3) and a 4-pin power connector are located on the serverboard. These power connectors meet the SSI EPS 12V specification. These power connectors must also be connected to your power supply. See the table on the right for pin definitions.

**Warning:** To provide adequate power supply to the serverboard, be sure to connect the 24-pin ATX PWR (JPW1), *two* 8-pin PWR connectors (JPW2/JPW3) and the 4-pin PWR connector (JPW4) to the power supply. Failure to do so will void the manufacturer warranty on your power supply and serverboard.

**ATX Power 24-pin Connector Pin Definitions (JPW1)**

| Pin# | Definition | Pin # | Definition |
|---|---|---|---|
| 13 | +3.3V | 1 | +3.3V |
| 14 | -12V | 2 | +3.3V |
| 15 | COM | 3 | COM |
| 16 | PS_ON | 4 | +5V |
| 17 | COM | 5 | COM |
| 18 | COM | 6 | +5V |
| 19 | COM | 7 | COM |
| 20 | Res (NC) | 8 | PWR_OK |
| 21 | +5V | 9 | 5VSB |
| 22 | +5V | 10 | +12V |
| 23 | +5V | 11 | +12V |
| 24 | COM | 12 | +3.3V |

**12V 8-pin PWR Connector Pin Definitions (JPW2/3)**

| Pins | Definition |
|---|---|
| 1 through 4 | Ground |
| 5 through 8 | +12V |

**Required Connections**

### PW_ON Connector

The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in the BIOS - See Chapter 5). To turn off the power when the system is in suspend mode, press the button for 4 seconds or longer. Refer to the table on the right for pin definitions.

**Power Button Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 1 | PW_ON |
| 2 | Ground |

### Reset Connector

The reset connector is located on pins 3 and 4 of JF1 and attaches to the reset switch on the computer chassis. See the table on the right for pin definitions.

**Reset Button Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 3 | Reset |
| 4 | Ground |

### Power Fail LED

The Power Fail LED connection is located on pins 5 and 6 of JF1. Refer to the table on the right for pin definitions.

**PWR Fail LED Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 5 | 3.3V |
| 6 | PWR Supply Fail |

### Overheat/Fan Fail LED (OH)

Connect an LED cable to pins 7 and 8 of Front Control Panel to use the Overheat/Fan Fail/Power Fail and UID LED connections. The Red LED on pin 7 provides warnings of overheat, fan failure or power failure. The Blue LED on pin 8 works as the front panel UID LED indicator. The Red LED takes precedence over the Blue LED by default. Refer to the table on the right for pin definitions.

**OH/Fan Fail/ PWR Fail/Blue_ UID LED Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 7 | Red_LED-Cathode/OH/Fan Fail/Power Fail5.5V.SB |
| 8 | Blue_UID LED |

**OH/Fan Fail/PWR Fail LED Status (Red LED)**

| State | Indication |
|---|---|
| Off | Normal |
| On | Overheat |
| Flashing | Fan Fail |

### NIC1 (LAN1) LED

The NIC (Network Interface Controller) LED connections for GLAN port 1 are located on pins 11 and 12 of JF1, and the LED connection for GLAN Port 2 are on Pins 9 and 10. Attach the NIC LED cables here to display network activity. Refer to the table on the right for pin definitions.

**NIC1 LED Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 9 | NIC 2 Activity LED |
| 10 | NIC 2 Link LED |
| 11 | NIC 1 Activity LED |
| 12 | NIC 1 Link LED |

### HDD LED

The HDD LED connection is located on pins 13 and 14 of JF1. Attach the hard drive LED cable here to display disk activity (for any hard drives on the system, including SAS, Serial ATA and IDE). See the table on the right for pin definitions

**HDD LED Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 13 | 3.3V Standby |
| 14 | HD Active |

### Power On LED

The Power On LED connector is located on pins 15 and 16 of JF1. This connection is used to provide LED indication of power being supplied to the system. See the table on the right for pin definitions.

**Power LED Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 15 | 3.3V |
| 16 | PWR LED |

### NMI Button

The non-maskable interrupt button header is located on pins 19 and 20 of JF1. Refer to the table on the right for pin definitions.

**NMI Button Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 19 | Control |
| 20 | Ground |

### Chassis Intrusion

A Chassis Intrusion header is located at JL1 on the serverboard. Attach an appropriate cable from the chassis to inform you of a chassis intrusion when the chassis is opened.

### Universal Serial Bus (USB)

Four Universal Serial Bus ports (USB 0/1, 2/3) are located on the I/O back panel. In addition, one USB header, located next to COM2 port, provides two front-accessible USB connections (USB 4/5). (Cables are not included). See the tables on the right for pin definitions.

**FP USB (4/5) Pin Definitions**

| USB 4, 8,10, 6, 7 Pin # | Definition | USB 5, 9, 11 Pin # | Definition |
|---|---|---|---|
| 1 | +5V | 1 | +5V |
| 2 | PO- | 2 | PO- |
| 3 | PO+ | 3 | PO+ |
| 4 | Ground | 4 | Ground |
| 5 | NC | 5 | Key |

(NC = No connection)

**Backplane USB (0/1, 2/3) Pin Definitions**

| Pin# | Definition |
|---|---|
| 1 | +5V |
| 2 | PO- |
| 3 | PO+ |
| 4 | Ground |
| 5 | NA |

### Ethernet Ports

Two Gigabit Ethernet ports (LAN1/2) are located on the I/O backplane on the serverboard to provide internet connections. In addition, an IPMI_ Dedicated LAN, located above USB 0/1 ports on the backplane, provides KVM support for IPMI 2.0. All these ports accept RJ45 type cables.

**LAN Ports Pin Definition (LAN 1/2)**

| Pin# | Definition | Pin# | Definition |
|---|---|---|---|
| 1 | P2V5SB | 10 | SGND |
| 2 | TD0+ | 11 | Act LED |
| 3 | TD0- | 12 | P3V3SB |
| 4 | TD1+ | 13 | Link 100 LED (Yellow, +3V3SB) |
| 5 | TD1- | 14 | Link 1000 LED (Yellow, +3V3SB) |
| 6 | TD2+ | 15 | Ground |
| 7 | TD2- | 16 | Ground |
| 8 | TD3+ | 17 | Ground |
| 9 | TD3- | 18 | Ground |

(NC = No Connection)

### Video Connection

One video (VGA) port (VGA1) is located next to LAN Port 2 on the I/O backplane. Refer to the board layout below for the location.

### Serial Ports

Two COM connections (COM1 & COM2) are located on the serverboard. COM1 is located on the Backplane I/O panel. COM2, located next to Front Accessible USB 4/5, is used to provide front access serial support. See the table on the right for pin definitions.

**Serial Port Pin Definitions (COM1/COM2)**

| Pin # | Definition | Pin # | Definition |
|---|---|---|---|
| 1 | DCD | 6 | DSR |
| 2 | RXD | 7 | RTS |
| 3 | TXD | 8 | CTS |
| 4 | DTR | 9 | RI |
| 5 | Ground | 10 | NC |

(NC = No connection)

### Fan Headers

This serverboard has six system/CPU fan headers (Fan 1~Fan 4, Fan A, Fan B) on the serverboard. All these 4-pin fans headers are backward compatible with the traditional 3-pin fans. However, fan speed control is available for 4-pin fans only. The fan speeds are controlled by Thermal Management via Hardware Monitoring in the Advanced Setting in the BIOS. (See Chapter 5 for more details.) See the table on the right for pin definitions.

**Fan Header Pin Definitions**

| Pin# | Definition |
|---|---|
| 1 | Ground |
| 2 | +12V |
| 3 | Tachometer |
| 4 | PWR Modulation |

### Power LED/Speaker

On JD1 header, pins 1-3 are used for power LED indication, and pins 4-7 are for the speaker. See the tables on the right for pin definitions. Please note that the speaker connector pins (4-7) are used with an external speaker. If you wish to use the onboard speaker, you should close pins 6-7 with a jumper.

**PWR LED Connector Pin Definitions (JD1)**

| Pin Setting | Definition |
|---|---|
| Pin 1 | Anode (+) |
| Pin 2 | Cathode (-) |
| Pin 3 | NA |

**Speaker Connector Pin Definitions**

| Pin Setting | Definition |
|---|---|
| Pins 4~7 | External Speaker |
| Pins 6~7 | Internal Speaker (Default) |

### Unit Identifier Switch

A Unit Identifier (UID) Switch and two LED Indicators are located on the serverboard. The UID Switch is located next to the VGA port. The Rear UID LED (LED3) is located next to the UID Switch. The Front Panel UID LED is located at Pins 7/8 of the Front Control Panel at JF1. Connect a cable to Pin 8 on JF1 for Front Panel UID LED indication. When you press the UID switch, both Rear UID LED and Front Panel UID LED Indicators will be turned on. Press the UID switch again to turn off both LED Indicators. These UID Indicators provide easy identification of a system unit that may be in need of service.

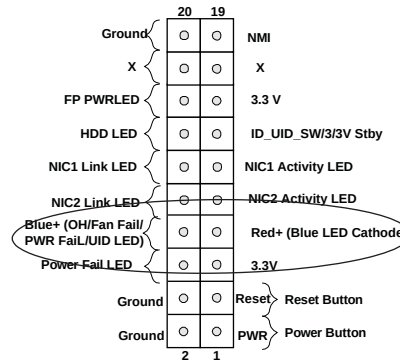
**Note:** UID can also be triggered via IPMI on the serverboard. For more information on IPMI, please refer to the IPMI User's Guide posted on our Website @http://www.supermicro.com.

**UID Switch**

| Pin# | Definition |
|---|---|
| 1 | Ground |
| 2 | Ground |
| 3 | Button In |
| 4 | Ground |

**UID LED Status**

| Color/State | OS | Status |
|---|---|---|
| Blue: On | Windows OS | Unit Identified |
| Blue: Blinking | Linux OS | Unit Identified |

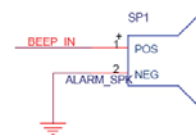



### Internal Speaker

The Internal Speaker, located at SP1, can be used to provide audible indications for various beep codes. See the table on the right for pin definitions. Refer to the layout below for the locations of the Internal Buzzer (SP1).

**Internal Buzzer (SP1) Pin Definition**

| Pin# | | Definitions |
|---|---|---|
| Pin 1 | Pos. (+) | Beep In |
| Pin 2 | Neg. (-) | Alarm Speaker |



### Overheat LED/Fan Fail

The JOH1 header is used to connect an LED indicator to provide warnings of chassis overheating and fan failure. This LED will blink when a fan failure occurs. Refer to the tables on right for pin definitions.

**Overheat LED Pin Definitions (JOH1)**

| Pin# | Definition |
|---|---|
| 1 | VDC |
| 2 | OH Active |

**OH/Fan Fail LED Status**

| State | Message |
|---|---|
| Solid | Overheat |
| Blinking | Fan Fail |

### Power SMB ($I^2C$) Connector

Power System Management Bus (I2C) Connector (JI2C1) monitors power supply, fan and system temperatures. See the table on the right for pin definitions.

**PWR SMB Pin Definitions (JI2C1)**

| Pin# | Definition |
|---|---|
| 1 | Clock |
| 2 | Data |
| 3 | PWR Fail |
| 4 | Ground |
| 5 | +3.3V |

### Port 80 Header

A Port 80 header, located at JLPC1, provides Port 80 support. Port 80 is an "Ask and Respond" port between a client machine and a host server. Port 80 allows the HTML (Hyper Text Markup Language) codes to be translated into web page displays so that you will see the web pages instead of the HTML codes when you browse the internet. See the table on the right for pin definitions.

**Port 80 Header Pin Definitions (JLPC1)**

| Pin # | Definition |
|---|---|
| 1 | +3.3V |
| 2 | LFRAME# |
| 3 | LCLK |
| 4 | LAD 3 |
| 5 | LRESET# |
| 6 | LAD2 |
| 7 | Ground |
| 8 | LAD0 |

### IPMB

A System Management Bus header for IPMI 2.0 is located at JIPMB1. Connect the appropriate cable here to use the IPMB $I^2C$ connection on your system.

**IPMB Header Pin Definitions (JIPMB1)**

| Pin# | Definition |
|---|---|
| 1 | Data |
| 2 | Ground |
| 3 | Clock |
| 4 | No Connection |

### T-SGPIO 1/2 Headers

Two SGPIO (Serial-Link General Purpose Input/Output) headers are located on the serverboard. These headers support Serial_Link interface for onboard SATA connections. See the table on the right for pin definitions.

**SGPIO Header Pin Definitions (T-SGPIO1/T-SGPIO2)**

| Pin# | Definition | Pin# | Definition |
|---|---|---|---|
| 1 | NC | 2 | Data In |
| 3 | Ground | 4 | Data Out |
| 5 | Load | 6 | Ground |
| 7 | Clock | 8 | NC |

(NC = No Connection)

### DOM Power Connector

A power connector for SATA DOM (Disk_On_Module) devices is located at JSD1. Connect an appropriate cable here to provide power support for your DOM devices.

**DOM Power Connector Pin Definitions**

| Pin# | Definition |
|---|---|
| 1 | +5V |
| 2 | Ground |
| 3 | Ground |

### Standby Power Connector

The Standby Power connection header is located at JSTBY1 on the serverboard. See the table on the right for pin definitions. (You must also have a cable to use this feature.)

**Standby Power Pin Definitions**

| Pin# | Definition |
|---|---|
| 1 | +5V Standby |
| 2 | Ground |
| 3 | Wake-up |

### Legacy Wake-On-LAN Header (JSTBY)

The onboard LAN por ts do not need a WOL header to support their Wake-On-LAN function. Instead, the legacy WOL header was preserved (JSTBY) to provide convenience for some embedded customers who need an internal power source from the board. See the table on the right for pin definitions.

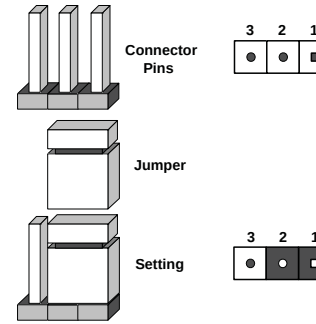
**Legacy Wake-On-LAN Header Pin Definitions (JSTBY)**

| Pin# | Definition |
|---|---|
| 1 | +5V Standby |
| 2 | Ground |
| 3 | Wake-up (signal) |

## 5-9 Jumper Settings

### Explanation of Jumpers

To modify the operation of the serverboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the diagram at right for an example of jumping pins 1 and 2. Refer to the serverboard layout page for jumper locations.




**Note:** On two-pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.

JBT1 contact pads

**CMOS Clear**

JBT1 is used to clear CMOS, which will also clear any passwords. Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

***To Clear CMOS***

1. First power down the system and unplug the power cord(s). It is also recommended that you remove the onboard battery from the serverboard.
2. With the power disconnected, short the CMOS pads with a metal object such as a small screwdriver.
3. Remove the screwdriver (or shorting device).
4. Reconnect the power cord(s) and power on the system.

**Note 1.** For an ATX power supply, you must completely shut down the system, remove the AC power cord, and then short JBT1 to clear CMOS.

**Note 2.** Be sure to remove the onboard CMOS Battery before you short JBT1 to clear CMOS.

**Note 3.** Clearing CMOS will also clear all passwords.

**Note 4:** *Do not use the PW_ON connector to clear CMOS.*

### LAN Enable/Disable

JPL1 enables or disables the GLAN Port1/GLAN Port2 on the serverboard. See the table on the right for jumper settings. The default setting is Enabled.

**LAN Enable/Disable Jumper Settings (JPL1)**

| Jumper Setting | Definition |
|---|---|
| Pins 1-2 | Enabled (default) |
| Pins 2-3 | Disabled |

### Watch Dog Enable/Disable

Watch Dog (JWD1) is a system monitor that can reboot the system when a software application hangs. Close Pins 1-2 to reset the system if an application hangs. Close Pins 2-3 to generate a non-maskable interrupt signal for the application that hangs. See the table on the right for jumper settings. Watch Dog must also be enabled in the BIOS.

**Watch Dog Enable/Disable Jumper Settings (JWD)**

| Jumper Setting | Definition |
|---|---|
| Pins 1-2 | Reset |
| Pins 2-3 | NMI |
| Open | Disabled |

### VGA Enable/Disable

Jumper JPG1 allows the user to enable the onboard VGA connector. The default setting is 1-2 to enable the connection. See the table on the right for jumper settings.

**VGA Enable/Disable Jumper Settings (JPG1)**

| Jumper Setting | Definition |
|---|---|
| Pins 1-2 | Enabled |
| Pins 2-3 | Disabled |

### BMC Enable

Jumper JPB1 allows you to enable the embedded the Renesas BMC (Baseboard Management) Controller to provide IPMI 2.0/KVM support on the serverboard. See the table on the right for jumper settings.

**BMC Enable/Disable Jumper Settings (JPB1)**

| Jumper Setting | Definition |
|---|---|
| Pins 1-2 | BMC Enable |
| Pins 2-3 | Normal (Default) |

### I2C Bus to PCI-Exp. Slots

Jumpers JI$^2$C1 and JI$^2$C2 allow you to connect the System Management Bus (I$^2$C) to PCI-Express slots. The default setting is Open to disable the connection. See the table on the right for jumper settings.

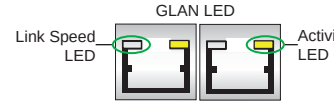
**I2C to PCI-Exp Jumper Setting**

| Jumper Setting | Definition |
|---|---|
| Closed | Enabled |
| Open | Disabled (Default) |

## 5-10 Onboard Indicators

### GLAN LEDs

The LAN 1/2 ports are located on the IO Backplane. Each Ethernet LAN port has two LEDs. The Yellow LED on the right indicates activity. The Link LED on the left may be green, amber or off to indicate the speed. See the tables at right for more information.

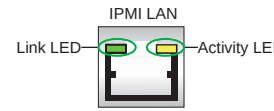



| GLAN Activity Indicator (Right) LED Settings | | |
|---|---|---|
| Color | Status | Definition |
| Off | No Connections | |
| Yellow | Flashing | Active |

| LAN Connection Speed Indicator (Left) LED Settings | |
|---|---|
| LED Color | Definition |
| Off | 10 MHz |
| Green | 100 MHz |
| Amber | 1 GHz |

### IPMI Dedicated LAN LEDs

In addition to LAN 1/LAN 2, an IPMI Dedicated LAN is also located on the I/O Backplane of the serverboard. The amber LED on the right indicates connection and activity, while the green LED on the left indicates the speed of the connection. See the tables at right for more information.




| IPMI LAN Link/Speed LED (Left) & Activity LED (Right) | | |
|---|---|---|
| Color | Status | Definition |
| Off | Off | No Connection |
| Green: Solid | Link/ Speed (Left) | 100 Mb/s |
| Amber Blinking | Activity (Right) | Active |

### Onboard Power LED

An Onboard Power LED is located at LE1 on the serverboard. When this LED is on, the system is on. Be sure to turn off the system and unplug the power cord before removing or installing components. See the tables at right for more information.

| Onboard PWR LED Indicator LED Settings (LE1) | |
|---|---|
| LED Color | Definition |
| Off | System Off (PWR cable not connected) |
| Green | System On |
| Green: Flashing Quickly | ACPI S1 State |

### Rear UID LED

The rear UID LED is located at LED3 on the rear of the serverboard. This LED is used in conjunction with the rear UID switch to provide easy identification of a system that might be in need of service. Refer to UID Switch on Page 2-17 for more information.

**UID LED Status**

| Color/State | Status |
|---|---|
| Blue: On | Unit Identified |
| Blue: On | Unit Identified |

### BMC Heartbeat LED

A BMC Heartbeat LED is located at DM1 on the serverboard. When DM1 is blinking, BMC functions normally. See the table at right for more information.

**BMC Heartbeat LED Status**

| Color/State | Definition |
|---|---|
| Green: Blinking | BMC: Normal |

## 5-11 SATA Drive Connections

### SATA/SC8U Ports

There are six Serial ATA ports (I-SATA0~I-SATA 5) located on the serverboard, including four SATA2 ports and two SATA3 ports. There are also eight SCU ports (0~3, 4~7) located on the X9DRW-3F, and four SCU ports (SCU 0~3) located on the X9DRW-iF. These ports provide serial-link signal connections, which are faster than the connections of Parallel ATA. See the table on the right for pin definitions.

**SATA/SCU Pin Definitions**

| Pin# | Definition |
|---|---|
| 1 | Ground |
| 2 | TX_P |
| 3 | TX_N |
| 4 | Ground |
| 5 | RX_N |
| 6 | RX_P |
| 7 | Ground |

**Note:** For more information on SATA HostRAID configuration, please refer to the Intel SATA HostRAID User's Guide posted on our Website @ http://www.supermicro.com.

## 5-12 Installing Drivers

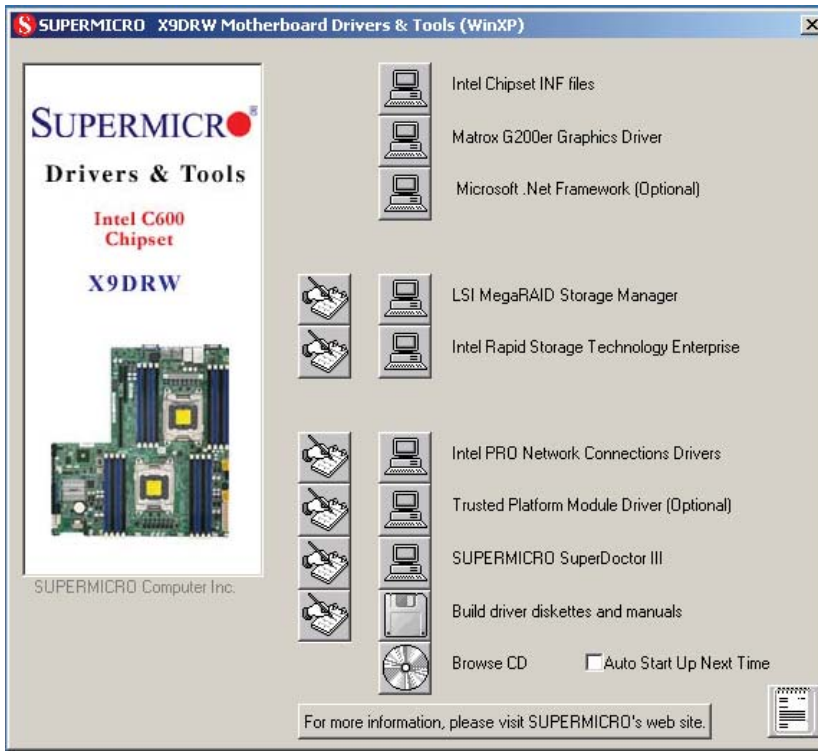
The Supermicro ftp site contains drivers and utilities for your system at ftp://ftp.supermicro.com. Some of these must be installed, such as the chipset driver.

After accessing the ftp site, go into the CDR_Images directory and locate the ISO file for your motherboard. Download this file to create a CD/DVD of the drivers and utilities it contains. (You may also use a utility to extract the ISO file if preferred.)

Another option is to go to the Supermicro Website at http://www.supermicro.com/products/. Find the product page for your motherboard here, where you may download individual drivers and utilities.

After creating a CD/DVD with the ISO files, insert the disk into the CD/DVD drive on your system and the display shown in Figure 5-5 should appear.

**Figure 5-6 Driver/Tool Installation Display Screen**


SUPERMICRO X9DRW Motherboard Drivers & Tools (WinXP)
SUPERMICRO
Drivers & Tools
Intel C600 Chipset
X9DRW
SUPERMICRO Computer Inc.
Intel Chipset INF files
Matrox G200er Graphics Driver
Microsoft .Net Framework (Optional)
LSI MegaRAID Storage Manager
Intel Rapid Storage Technology Enterprise
Intel PRO Network Connections Drivers
Trusted Platform Module Driver (Optional)
SUPERMICRO SuperDoctor III
Build driver diskettes and manuals
Browse CD
Auto Start Up Next Time
For more information, please visit SUPERMICRO's web site.

**Note:** Click the icons showing a hand writing on paper to view the readme files for each item. Click the computer icons to the right of these items to install each item (from top to the bottom) one at a time. **After installing each item, you must re-boot the system before moving on to the next item on the list.** The bottom icon with a CD on it allows you to view the entire contents.

### SuperDoctor III

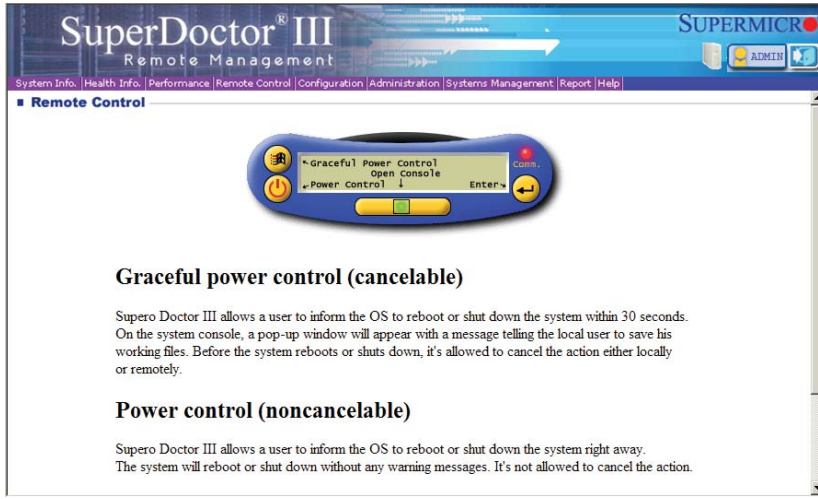
The SuperDoctor® III program is a web-based management tool that supports remote management capability. It includes Remote and Local Management tools. The local management is called SD III Client. The SuperDoctor III program allows you to monitor the environment and operations of your system. SuperDoctor III displays crucial system information such as CPU temperature, system voltages and fan status. See the figures below for examples of the SuperDoctor III interface.

**Note:** The default User Name and Password for SuperDoctor III is ADMIN / ADMIN.

**Note:** When SuperDoctor III is first installed, it adopts the temperature threshold settings that have been set in BIOS. Any subsequent changes to these thresholds must be made within SuperDoctor III, as the SuperDoctor III settings override the BIOS settings. To set the BIOS temperature threshold settings again, you would first need to uninstall SuperDoctor III.

**Figure 5-7. Supero Doctor III Interface Display Screen (Health Information)**

**Figure 5-8. Supero Doctor III Interface Display Screen (Remote Control)**

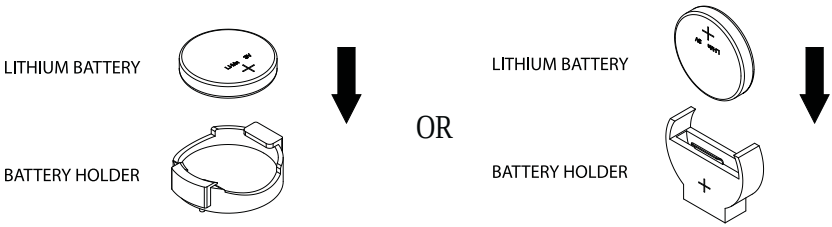

SuperDoctor® III
Remote Management
SUPERMICRO
ADMIN
System Info.
Health Info.
Performance
Remote Control
Configuration
Administration
Systems Management
Report
Help
Remote Control
Graceful Power Control
Open Console
Power Control
Enter
Comm.
Graceful power control (cancelable)
Supero Doctor III allows a user to inform the OS to reboot or shut down the system within 30 seconds. On the system console, a pop-up window will appear with a message telling the local user to save his working files. Before the system reboots or shuts down, it's allowed to cancel the action either locally or remotely.
Power control (noncancelable)
Supero Doctor III allows a user to inform the OS to reboot or shut down the system right away. The system will reboot or shut down without any warning messages. It's not allowed to cancel the action.

**Note:** The SuperDoctor III program and User's Manual can be downloaded from the Supermicro web site at http://www.supermicro.com/products/accessories/software/SuperDoctorIII.cfm. For Linux, we recommend that you use the SuperoDoctor II application instead.

## 5-13 Serverboard Battery

**Caution**: There is a danger of explosion if the onboard battery is installed upside down, which will reverse its polarites (see Figure 5-9). This battery must be replaced only with the same or an equivalent type recommended by the manufacturer (CR2032). Dispose of used batteries according to the manufacturer's instructions.

**Figure 5-9. Installing the Onboard Battery**




Please handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.

# Chapter 6

# Advanced Chassis Setup

This chapter covers the steps required to install components and perform maintenance on the SC113TQ-R700WB chassis. For component installation, follow the steps in the order given to eliminate the most common problems encountered. If some steps are unnecessary, skip ahead to the next step.

**Tools Required:** The only tool you will need to install components and perform maintenance is a Philips screwdriver.

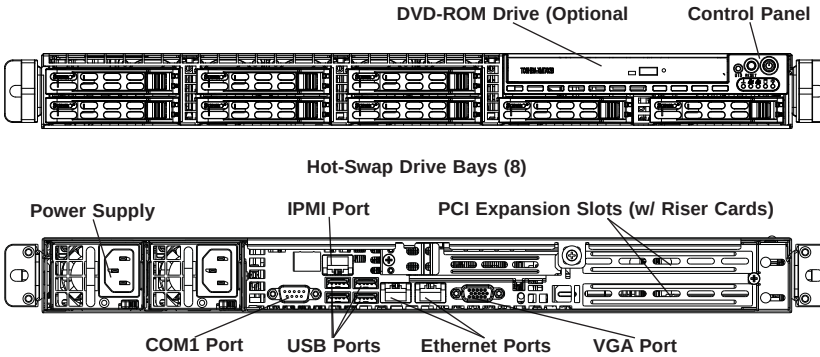
## 6-1 Static-Sensitive Devices

Electrostatic discharge (ESD) can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully. The following measures are generally sufficient to protect your equipment from ESD damage.

### Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing any board from its antistatic bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the serverboard, add-on cards and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the serverboard.

**Figure 6-1. Chassis: Front and Rear Views**




## 6-2 Control Panel

The control panel (located on the front of the chassis) must be connected to the JF1 connector on the serverboard to provide you with system status indications. These wires have been bundled together as a ribbon cable to simplify the connection.

Connect the cable from JF1 on the serverboard to the appropriate header on the Control Panel PCB (printed circuit board). Make sure the red wire plugs into pin 1 on both connectors. Pull all excess cabling out of the airflow path.

The control panel LEDs inform you of system status. See "Chapter 3: System Interface" for details on the LEDs and the control panel buttons. Details on JF1 can be found in "Chapter 5: Advanced Serverboard Setup."

## 6-3 System Fans

Five 4-cm counter-rotating fans provide the cooling for the system. Each fan unit is actually made up of two fans joined back-to-back, which rotate in opposite directions. This counter-rotating action generates exceptional airflow and works to dampen vibration levels. The SC113 chassis provides two additional open fan housings, where an additional system fan may be added for optimal cooling.

It is very important that the chassis top cover is properly installed and making a good seal in order for the cooling air to circulate properly through the chassis and cool the components. See Figure 6-2 System Fan Failure.

***Adding a System Fan***

1. Turn off the power to the system and unplug the power cord.
2. Remove the chassis cover then remove the dummy fan from the fan tray.

3. Place the new fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans.
4. Connect the fan wires to the fan header on the serverboard.
5. Power up the system and check that the fan is working properly before replacing the chassis cover.

## System Fan Failure

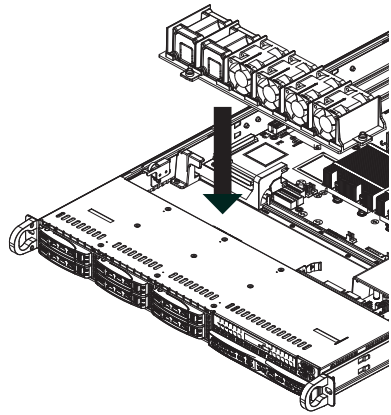
Fan speed is controlled by system temperature via IPMI. If a fan fails, the remaining fans will ramp up to full speed. Replace any failed fan at your earliest convenience with the same type and model (the system can continue to run with a failed fan).

The SC113 chassis includes four pre-installed fans. Two additional open slots are available so that. up to two more fans may be added.

***Replacing a System Fan (Figure 6-2)***

1. Open the chassis while the system is running to determine which fan has failed. Never run the server for an extended period of time with the chassis open.
2. Turn off the power to the system and unplug the power cord.
3. Remove the failed fan's wiring from the fan header on the serverboard.
4. Lift the failed fan from the chassis and pull it completely out.
5. Place the new fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans.
6. Reconnect the fan wires to the same chassis fan header as the previous fan.
7. Power up the system and check that the fan is working properly and that the LED on the control panel has turned off. Finish by replacing the chassis cover.

**Figure 6-2: Replacing a System Fan (shown with optional fan installed)**



## 6-4 Drive Bay Installation/Removal

### Accessing the Drive Bays

Hard Drives: Because of their hotswap capability, you do not need to access the inside of the chassis or power down the system to install or replace hard drives. Proceed to the next section for instructions.

DVD-ROM Drive: For installing/removing a DVD-ROM drive, you will need to gain access to the inside of the system by removing the top cover of the chassis. Proceed to the "DVD-ROM Drive Installation" section later in this chapter for instructions.

**Note:** Only a "slim" DVD-ROM drive will fit into the 1027R-WRF.

### Hard Drive Installation

The hard drives are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help promote proper airflow for the drive bays. For this reason, even empty carriers without drives installed must remain in the chassis.

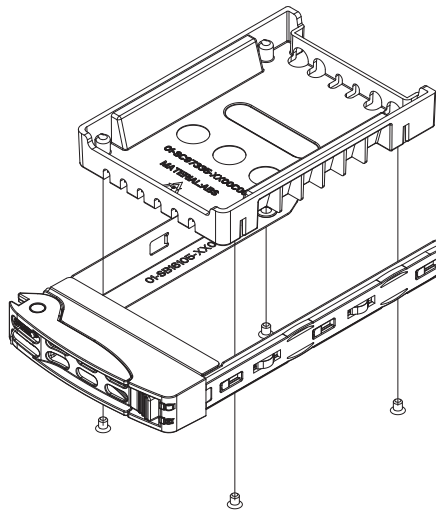
***Installing a Hard Drive into a Drive Carrier (Figure 6-3)***

1. Insert a drive into the carrier with the PCB side facing down and the connector end toward the rear of the carrier.
2. Align the drive in the carrier so that the screw holes of both line up. Note that there are holes in the carrier marked “SATA” to aid in correct installation.
3. Secure the drive to the carrier with four screws as illustrated below.
4. Insert the drive carrier into its bay, keeping the carrier oriented so that the hard drive is on the top of the carrier and the release button is on the right side. When the carrier reaches the rear of the bay, the release handle will retract.
5. Push the handle in until it clicks into its locked position

***Removing a Hard Drive (Figure 6-4)***

1. To remove a carrier, push the release button located beside the drive LEDs.

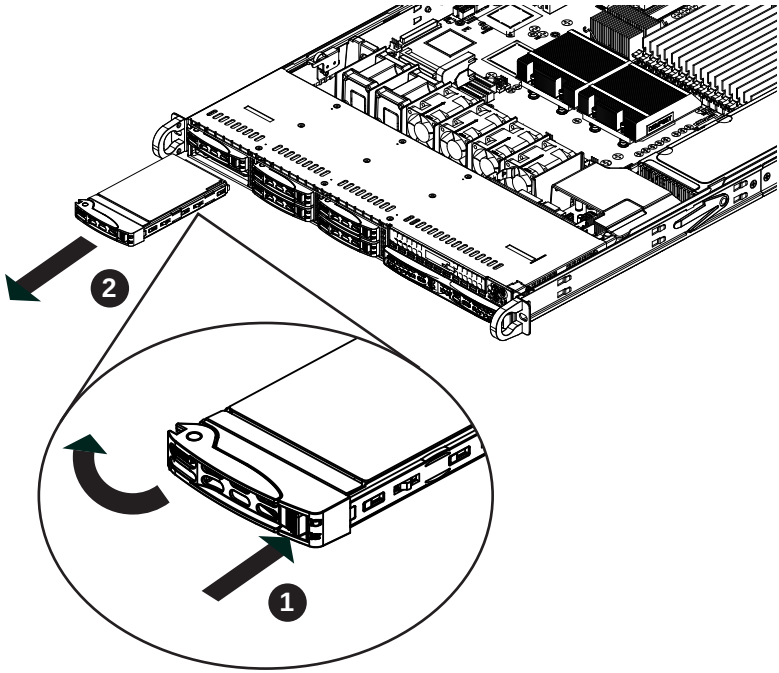
**Figure 6-3: Installing a Hard Drive into a Carrier**



2. Swing the handle fully out and use it to pull the unit straight out.

**Note:** Your operating system must have RAID support to enable the hot-plug capability of the hard drives.

**Figure 6-4. Removing a Hard Drive**




**Caution:** Use caution when working around the hard drive backplane. Do not touch the backplane with any metal objects and make sure no ribbon cables touch the backplane or obstruct the holes, which aid in proper airflow.

**Caution:** Regardless of how many hard drives are installed, all drive carriers must remain in the drive bays to maintain proper airflow.

**Warning: Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro Web site at http://www.supermicro.com/products/nfo/files/storage/SAS-CompList.pdf**

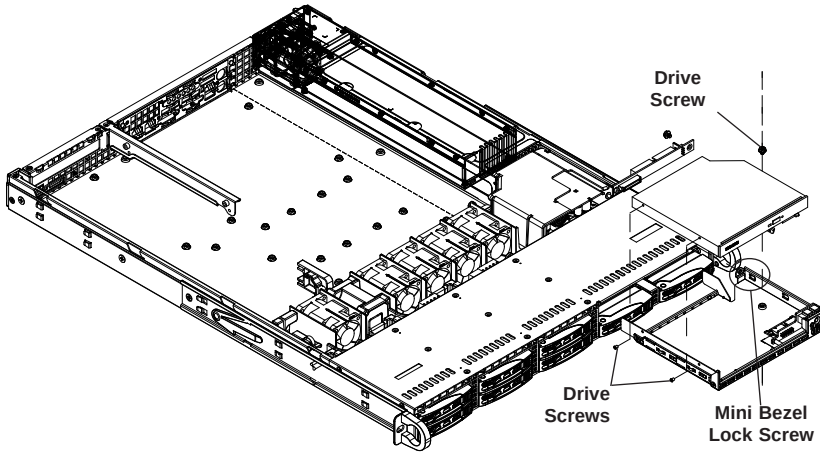
## DVD Drive Installation

The SC113 chassis can install an optional DVD-ROM.

***Installing or Replacing a DVD-ROM Drive (Figure 6-5)***

1. Power down the system and if necessary, remove the server from the rack and the front bezel from the chassis.
2. Remove the chassis cover.
3. Unplug the drives power and data cables from the serverboard and/or backplane.
4. If you are adding a new drive: Remove the mini-bezel (grate) from the drive bay The bezel can be removed by pulling out the hard drive beneath the DVD-ROM, then pulling the mini-bezel forward.
   If you are replacing a drive: Locate the locking tab at the rear (left hand side when viewed from the front) of the DVD-ROM drive. Push the tab toward the drive and push the drive unit out the front of the chassis.
5. Insert the new drive unit in the slot until the tab locks in place.
6. Reconnect the data and power cables.
7. Replace the chassis cover (replace the server in the rack, if necessary) and power up the system.

**Figure 6-5. Installing the DVD-ROM Drive**



## 6-5 Power Supply

The SUPERSERVER 1027R-WRF has two 700 Watt power supplies, which are auto-switching capable. This enables it to automatically sense and operate with a 100V to 240V input voltage.

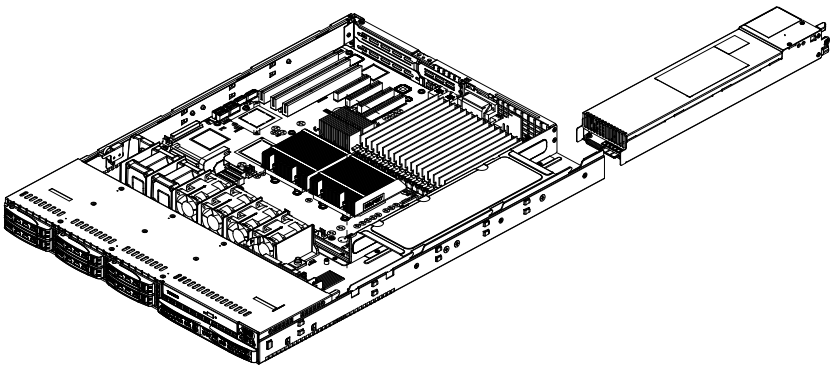
### Power Supply Failure

If the power supply module fails, the Universal Information LED on the control panel will blink slowly and remain so until the failed module has been replaced. Replacement modules can be ordered directly from Supermicro (see contact information in the Preface).

***Removing/Replacing the Power Supply (Figure 6-6)***

1. Check the LEDs on the power supplies to determine which module has failed.
2. Push the release tab (on the back of the power supply) as illustrated.
3. Pull the power supply out using the handle provided.
4. Replace the failed power module with the same model.
5. Push the new power supply module into the power bay until you hear a click.

**Figure 6-6. Removing/Replacing the Power Supply**



# Chapter 7

# BIOS

## 7-1 Introduction

This chapter describes the AMI BIOS Setup Utility for the SUPERSERVER 1027R-WRF. The AMI ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS Setup Utility setup screens.

### Starting the Setup Utility

To enter the BIOS Setup Utility, hit the <Delete> key while the system is booting-up. (In most cases, the <Delete> key is used to invoke the BIOS setup screen. There are a few cases when other keys are used, such as <F1>, <F2>, etc.) Each main BIOS menu option is described in this manual.

The Main BIOS screen has two main frames. The left frame displays all the options that can be configured. “Grayed-out” options cannot be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it. (Note that BIOS has default text messages built in. We retain the option to include, omit, or change any of these text messages.) Settings printed in **Bold** are the default values.

A " ▶" indicates a submenu. Highlighting such an item and pressing the <Enter> key will open the list of settings within that submenu.

The BIOS setup utility uses a key-based navigation system called hot keys. Most of these hot keys (<F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, etc.) can be used at any time during the setup navigation process.

## 7-2 Main Menu

When you first enter AMI BIOS Setup Utility, you will see the Main Menu screen. You can always return to the Main Menu by selecting the Main tab on the top of the screen with the arrow keys.

The Main Menu screen provides you with a system overview, which includes the version, built date and ID of the AMIBIOS, the type, speed and number of the processors in the system and the amount of memory installed in the system.

### System Time/System Date

You can edit this field to change the system time and date. Highlight *System Time* or *System Date* using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in DAY/MM/DD/YYYY format. The time is entered in HH:MM:SS format. Please note that time is in a 24-hour format. For example, 5:30 A.M. appears as 05:30:00 and 5:30 P.M. as 17:30:00.

## 7-3 Advanced Settings Menu

Use the arrow keys to select Advanced Setup and press <Enter> to access the following submenu items.

### ▶Boot Features

**Quiet Boot**

This feature allows the user to select bootup screen display between POST messages and the OEM logo. Select Disabled to display the POST messages. Select Enabled to display the OEM logo instead of the normal POST messages. The options are **Enabled** and Disabled.

**AddOn ROM Display Mode**

Use this item to set the display mode for the Option ROM. Select Keep Current to use the current AddOn ROM Display setting. Select Force BIOS to use the Option ROM display mode set by the system BIOS. The options are **Force BIOS** and Keep Current.

**Bootup Num-Lock**

Use this feature to set the Power-on state for the Numlock key. The options are Off and **On**.

**Wait For 'F1' If Error**

Select Enabled to force the system to wait until the 'F1' key is pressed if an error occurs. The options are Disabled and **Enabled**.

**Interrupt 19 Capture**

Interrupt 19 is the software interrupt that handles the boot disk function. When this item is set to Enabled, the ROM BIOS of the host adaptors will "capture" Interrupt 19 at bootup and allow the drives that are attached to these host adaptors to function as bootable disks. If this item is set to Disabled, the ROM BIOS of the host adaptors will not capture Interrupt 19, and the drives attached to these adaptors will not function as bootable devices. The options are **Enabled** and Disabled.

## Power Configuration

**Watch Dog Function**

If enabled, the Watch Dog timer will allow the system to reboot when it is inactive for more than 5 minutes. The options are Enabled and **Disabled.**

**Power Button Function**

If this feature is set to Instant Off, the system will power off immediately as soon as the user presses the power button. If this feature is set to 4 Seconds Override, the system will power off when the user presses the power button for 4 seconds or longer. The options are **Instant Off** and 4 Seconds Override.

**Restore on AC Power Loss**

Use this feature to set the power state after a power outage. Select Stay Off for the system power to remain off after a power loss. Select Power-On for the system power to be turned on after a power loss. Select Last State to allow the system to resume its last state before a power loss. The options are Stay Off, Power On, and **Last State**.

## CPU Configuration

This submenu displays the information of the CPU as detected by the BIOS. It also allows the user to configure the CPU settings.

## ▶Socket 1 CPU Information/Socket 2 CPU Information

This submenu displays the following information regarding the CPUs installed in Socket 1/ Socket 2.

- Type of CPU
- CPU Signature
- Microcode Patch
- CPU Stepping
- Maximum CPU Speed
- Minimum CPU Speed
- Processor Cores
- Intel HT (Hyper-Threading) Technology
- Intel VT-x Technology
- Intel SMX Technology
- L1 Data Cache
- L1 Code Cache
- L2 Cache
- L3 Cache

**CPU Speed**

This item displays the speed of the CPU installed in Socket 1/Socket 2.

**64-bit**

This item indicates if the CPU installed in Socket 1 or Socket 2 supports 64-bit technology.

**Clock Spread Spectrum**

Select Enable to enable Clock Spectrum support, which will allow the BIOS to monitor and attempt to reduce the level of Electromagnetic Interference caused by the components whenever needed. The options are **Disabled** and Enabled.

**Hyper-threading**

Select Enabled to support Intel Hyper-threading Technology to enhance CPU performance. The options are **Enabled** and Disabled.

**Active Processor Cores**

Set to Enabled to use a processor's second core and above. (Please refer to Intel's website for more information.) The options are **All,** 1, 2, and 4.

**Limit CPUID Maximum**

This feature allows the user to set the maximum CPU ID value. Enable this function to boot the legacy operating systems that cannot support processors with extended CPUID functions. The options are **Disabled** (for the Windows OS), and Enabled.

**Execute Disable Bit Capability (Available if supported by the OS & the CPU)**

Select Enabled to enable the Execute Disable Bit which will allow the processor to designate areas in the system memory where an application code can execute and where it cannot, thus preventing a worm or a virus from flooding illegal codes to overwhelm the processor or damage the system during an attack. The options are **Enabled** and Disabled. (Refer to Intel and Microsoft Web sites for more information.)

**Intel® AES-NI**

Select Enable to use the Intel Advanced Encryption Standard (AES) New Instructions (NI) to ensure data security. The options are **Enabled** and Disabled.

**Hardware Prefetcher (Available when supported by the CPU)**

If set to Enabled, the hardware prefetcher will prefetch streams of data and instructions from the main memory to the L2 cache to improve CPU performance. The options are Disabled and **Enabled**.

**Adjacent Cache Line Prefetch (Available when supported by the CPU)**

The CPU prefetches the cache line for 64 bytes if this feature is set to Disabled. The CPU prefetches both cache lines for 128 bytes as comprised if this feature is set to **Enabled**.

**DCU Streamer Prefetcher (Available when supported by the CPU)**

Select Enabled to support Data Cache Unite (DCU) prefetch to speed up data accessing and processing in the DCU to enhance CPU performance. The options are Disabled and **Enabled**.

**DCU IP Prefetcher**

Select Enabled for DCU (Data Cache Unit) IP Prefetcher support, which will prefetch IP addresses to improve network connectivity and system performance. The options are **Enabled** and Disabled.

**Intel® Virtualization Technology (Available when supported by the CPU)**

Select Enabled to support Intel Virtualization Technology, which will allow one platform to run multiple operating systems and applications in independent partitions, creating multiple "virtual" systems in one physical computer. The options are **Enabled** and Disabled.

**Note**: If there is any change to this setting, you will need to power off and restart the system for the change to take effect. Please refer to Intel's website for detailed information.)

## ▶CPU Power Management Configuration

This submenu allows the user to configure the following CPU Power Management settings.

**Power Technology**

Select Energy Efficient to support power-saving mode. Select Custom to customize system power settings. Select Disabled to disable power-saving settings. The options are Disabled, **Energy Efficient**, and Custom. If the option is set to Custom, the following items will display:

**EIST (Available when Power Technology is set to Custom)**

EIST (Enhanced Intel SpeedStep Technology) allows the system to automatically adjust processor voltage and core frequency to reduce power consumption and heat dissipation. The options are Disabled (GV3 Disabled), and **Enabled (GV3 Enabled)**. (**Note**: GV3 is Intel Speedstep support used on older platforms.)Please refer to Intel's website for detailed information.)

**Turbo Mode (Available when Power Technology is set to Custom)**

Select Enabled to use the Turbo Mode to boost system performance. The options are **Enabled** and Disabled.

**C1E (Available when Power Technology is set to Custom)**

Select Enabled to enable Enhanced C1 Power State to maximize energy efficiency. The options are **Enabled** and Disabled.

**CPU C3 Report (Available when Power Technology is set to Custom)**

Select Enabled to allow the BIOS to report the CPU C3 State (ACPI C2) to the operating system. During the CPU C3 State, the CPU clock generator is turned off. The options are Enabled and **Disabled.**

**CPU C6 Report (Available when Power Technology is set to Custom)**

Select Enabled to allow the BIOS to report the CPU C6 State (ACPI C3) to the operating system. During the CPU C6 State, the power to all cache is turned off. The options are **Enabled** and Disabled.

**CPU C7 Report (Available when Power Technology is set to Custom)**

Select Enabled to allow the BIOS to report the CPU C7 State (ACPI C3) to the operating system. CPU C7 State is a processor-specific low C-State. The options are **Enabled** and Disabled.

**Package C-State limit (Available when Power Technology is set to Custom)**

This feature allows the user to set the limit on the C-State package register. The options are C0, C2, **C6,** and No Limit.

**Factory Long Duration Power Limit**

This item displays the power limit set by the manufacturer during which long duration power is maintained.

**Long Duration Power Limit**

This item displays the user-defined power limit (in watts) during which long duration power is maintained.

**Factory Long Duration Maintained (Available when Power Technology is set to Custom)**

This item displays the period of time set by the manufacturer during which long duration power is maintained.

**Long Duration Maintained**

This item displays the period of time in seconds during which long duration power is maintained.

**Recommended Short Duration Power**

This item displays the short duration power settings recommended by the manufacturer.

**Short Duration Power Limit**

This item displays the time period during which short duration power is maintained.

## ▶Chipset Configuration

## ▶North Bridge

This feature allows the user to configure the settings for the Intel North Bridge.

### ▶Integrated IO Configuration

**Intel VT-d**

Select Enabled to enable Intel Virtualization Technology support for Direct I/O VT-d by reporting the I/O device assignments to the VWM (Virtual Working Memory) through the DMAR ACPI Tables. This feature offers fully-protected I/O resource sharing across Intel platforms, providing greater reliability, security and availability in networking and data-sharing. The options are Disabled and **Enabled**.

**Intel I/OAT**

The Intel I/OAT (I/O Acceleration Technology) significantly reduces CPU overhead by leveraging CPU architectural improvements, freeing the system resource for other tasks. The options are Disabled and **Enabled**.

**DCA Support**

Select Enabled to use Intel's DCA (Direct Cache Access) Technology to improve data transfer efficiency. The options are Disabled and **Enabled**.

**IIO 1 PCIe Port Bifurcation Control/ IIO 2 PCIe Port Bifurcation Control**

This submenu configures the following IO PCIe Port Bifurcation Control settings for IIO 1 PCIe ports or IIO 2 PCIe ports to determine how the available PCI-Express lanes are distributed between the PCI-Express Root Ports.

**IIO 2 PCIe Port**

This item configures IOU2-PCIe Port settings. The options are: x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16 and **Auto**.

**IIO 3 PCIe Port**

This item configures IOU3-PCIe Port settings. The options are: x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16 and **Auto**.

## ▶QPI Configuration

**Current QPI Link**

This item displays the current status of the QPI Link.

**Current QPI Frequency**

This item displays the frequency of the QPI Link.

**Isoc**

Select Enabled to enable Isochronous support to meet QoS (Quality of Service) requirements. This feature is especially important for virtualization technology. The options are **Enabled** and Disabled.

**QPI (Quick Path Interconnect) Link Speed Mode**

Use this feature to select data transfer speed for QPI Link connections. The options are **Fast** and Slow.

**QPI Link Frequency Select**

Use this feature to select the desired QPI frequency. The options are **Auto**, 6.4 GT/s, 7.2 GT/s, and 8.0 GT/s.

## ▶DIMM Configuration

This section displays the following DIMM information.

**Current Memory Mode**

This item displays the current memory mode.

**Current Memory Speed**

This item displays the current memory speed.

**Mirroring**

This item displays if memory mirroring is supported by the serverboard. Memory mirroring creates a duplicate copy of the data stored in the memory to enhance data security.

**Sparing**

This item displays if memory sparing is supported by the serverboard. Memory sparing enhances system performance.

## ▶DIMM Information

The status of the memory modules specified below will be displayed as detected by the BIOS.

**CPU Socket 1 DIMM Information**

P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMMA2/P1-DIMMB2/P1-DIMMC2/P1-DIMMD2

**CPU Socket 2 DIMM Information**

P2-DIMME1/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1/P2-DIMME2/P2-DIMMF2/P2-DIMMG2/P2-DIMMH2

**Memory Mode**

When Independent is selected, all DIMMs are available to the operating system. When Mirroring is selected, the serverboard maintains two identical copies of all data in memory for data backup. When Lockstep is selected, the serverboard uses two areas of memory to run the same set of operations in parallel. The options are **Independent**, Mirroring, and Lockstep.

**DRAM RAPL Mode**

RAPL (Running Average Power Limit) provides mechanisms to enforce power consumption limits on supported processors The options are Disabled, DRAM RAPL MODE0 , and **DRAM RAPL MODE1**.

**DDR Speed**

Use this feature to force a DDR3 memory module to run at a frequency other than what is specified in the specification. The options are **Auto**, Force DDR3-800, Force DDR3-1066, Force DDR3-1333, Force DDR3-1600 and Force SPD.

**Channel Interleaving**

This feature selects from the different channel interleaving methods. The options are **Auto**, 1 Way, 2 Way, 3, Way, and 4 Way.

**Rank Interleaving**

This feature allows the user to select a rank memory interleaving method. The options are **Auto**, 1 Way, 2 Way, 4, Way, and 8 Way.

**Patrol Scrub**

Patrol Scrubbing is a process that allows the CPU to correct correctable memory errors detected on a memory module and send the correction to the requestor (the original source). When this item is set to Enabled, the IO hub will read and write back one cache line every 16K cycles, if there is no delay caused by internal processing. By using this method, roughly 64 GB of memory behind the IO hub will be scrubbed every day. The options are **Enabled** and Disabled.

**Demand Scrub**

Demand Scrubbing is a process that allows the CPU to correct correctable memory errors found on a memory module. When the CPU or I/O issues a demand-read command, and the read data from memory turns out to be a correctable error, the error is corrected and sent to the requestor (the original source). Memory is updated as well. Select Enabled to use Demand Scrubbing for ECC memory correction. The options are Enabled and **Disabled**.

**Data Scrambling**

Select Enabled to enable data scrubbing to ensure data security and integrity. The options are **Disabled** and Enabled.

**Device Tagging**

Select Enabled to support device tagging. The options are **Disabled** and Enabled.

**Thermal Throttling**

Throttling improves reliability and reduces power consumption in the processor via automatic voltage control during processor idle states. The options are Disabled and **CLTT** (Closed Loop Thermal Throttling).

## ▶South Bridge Configuration

This feature allows the user to configure the settings for the Intel PCH chip.

**PCH Information**

This feature displays the following PCH information.

**Name**:

This item displays the name of the PCH chip.

**Stepping**:

This item displays the status of PCH stepping.

**USB Devices**:

This item displays the USB devices detected by the BIOS.

**All USB Devices**

This feature enables all USB ports/devices. The options are Disabled and **Enabled**. (If set to Enabled, EHCI Controller 1 and Controller 2 will appear.)

**EHCI Controller 1/EHCI Controller 2 (Available when All USB Devices are set to Enabled)**

Select Enabled to enable EHCI (Enhanced Host Controller Interface) Controller 1 or Controller 2. The options are Disabled and **Enabled**.

**Legacy USB Support (Available when USB Functions is not Disabled)**

Select Enabled to support legacy USB devices. Select Auto to disable legacy support if USB devices are not present. Select Disable to have USB devices available for EFI (Extensive Firmware Interface) applications only. The settings are Disabled, **Enabled** and Auto.

**Port 60/64 Emulation**

Select Enabled to enable I/O port 60h/64h emulation support for the legacy USB keyboard so that it can be fully supported by the operating systems that does not recognize a USB device. The options are Disabled and **Enabled**.

**EHCI Hand-Off**

This item is for operating systems that do not support Enhanced Host Controller Interface (EHCI) hand-off. When enabled, EHCI ownership change will be claimed by the EHCI driver. The options are **Disabled** and Enabled.

## ▶SATA Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of IDE or SATA devices and displays the following items.

**SATA Port0~SATA Port5:**

The AMI BIOS displays the status of each SATA port as detected by the BIOS.

**SATA Mode**

Use this feature to configure SATA mode for a selected SATA port. The options are Disabled, IDE Mode, **AHCI Mode** and RAID Mode. The following are displayed depending on your selection:

**IDE Mode**

The following items are displayed when IDE Mode is selected:

**SATA (Serial-ATA) Controller 0/SATA (Serial-ATA) Controller 1**

Use this feature to activate/deactivate and to set the SATA mode for SATA Controller 0 or SATA Controller 1. The options for Controller 0 are Disabled, Enhanced and **Compatible.** The Options for Controller 1 are Disabled and **Enhanced**.

**AHCI Mode**

The following items are displayed when the AHCI Mode is selected.

**Aggressive Link Power Management**

Select Enabled to enable Aggressive Link Power Management support for Cougar Point B0 stepping and beyond. The options are **Enabled** and Disabled.

**Port 0~5 Hot Plug**

Select Enabled to enable hot-plug support for a particular port, which will allow the user to change a hardware component or device without shutting down the system. The options are Enabled and **Disabled**.

**Staggered Spin Up**

Select Enabled to enable Staggered Spin-up support to prevent excessive power consumption caused by multiple HDDs spinning-up simultaneously. The options are Enabled and **Disabled**.

**RAID Mode**

The following items are displayed when RAID Mode is selected:

**Port 0~5 Hot Plug**

Select Enabled to enable hot-plug support for the particular port. The options are **Enabled** and Disabled.

## ▶SCU (Storage Control Unit) Configuration

**Storage Controller Unit**

Select Enabled to enable PCH SCU storage devices. The options are Disabled and **Enabled**.

**OnChip SCU Option ROM**

Select Enabled to support the onboard SCU Option ROM to boot up the system via a storage device. The options are Disabled and **Enabled**.

**SCU Port 0~CU Port 7**: The AMI BIOS will automatically detect the onboard SCU devices and display the status of each SCU device as detected.

## ▶PCIe/PCI/PnP Configuration

**PCI ROM Priority**

Use this feature to select the Option ROM to boot the system when there are multiple Option ROMs available in the system. The options are EFI Compatible ROM and **Legacy ROM**.

**PCI Latency Timer**

Use this feature to set the latency Timer of each PCI device installed on a PCI bus. Select 64 to set the PCI latency to 64 PCI clock cycles. The options are 32, **64**, 96, 128, 160, 192, 224 and 248.

**Above 4G Decoding (Available if the system supports 64-bit PCI decoding)**

Select Enabled to decode a PCI device that supports 64-bit in the space above 4G Address. The options are Enabled and **Disabled**.

**PERR# Generation**

Select Enabled to allow a PCI device to generate a PERR number for a PCI Bus Signal Error Event. The options are Enabled and **Disabled**.

**SERR# Generation**

Select Enabled to allow a PCI device to generate an SERR number for a PCI Bus Signal Error Event. The options are **Enabled** and Disabled.

**Maximum Payload**

Select Auto to allow the system BIOS to automatically set the maximum payload value for a PCI-E device to enhance system performance. The options are **Auto**, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes.

**Maximum Read Request**

Select Auto to allow the system BIOS to automatically set the maximum Read Request size for a PCI-E device to enhance system performance. The options are **Auto**, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes.

**ASPM Support**

This feature allows the user to set the Active State Power Management (ASPM) level for a PCI-E device. Select Force L0 to force all PCI-E links to operate at L0 state. Select Auto to allow the system BIOS to automatically set the ASPM level for the system. Select Disabled to disable ASPM support. The options are **Disabled**, Force L0, and Auto.

**Warning**: Enabling ASPM support may cause some PCI-E devices to fail!

**CPU1 SXB 1A OPROM/CPU1 SXB 1B OPROM/CPU1 SXB 1C OPROM/CPU2 SXB2 PCI-E 3.0 x16 OPROM**

Select Enabled to enable Option ROM support to boot the computer using a network interface from the slots specified above. The options are **Enabled** and Disabled.

**Onboard LAN Option ROM Select**

Select iSCSI to use the iSCSI Option ROM to boot the computer using a network device. Select PXE (Preboot Execution Environment) to use an PXE Option ROM to boot the computer using a network device. The options are iSCSI and **PXE**.

**Load Onboard LAN1 Option ROM/Load Onboard LAN2 Option ROM**

Select Enabled to enable the onboard LAN1 Option ROM/LAN2 Option ROM. This is to boot the computer using a network device. The default setting for LAN1 Option ROM is **Enabled**, and the default setting for LAN2 Option ROM is **Disabled**.

**VGA Priority**

This feature allows the user to select the graphics adapter to be used as the primary boot device. The options are **Onboard**, and Offboard.

**Network Stack**

Select Enabled enable PXE (Preboot Execution Environment) or UEFI (Unified Extensible Firmware Interface) for network stack support. The options are Enabled and **Disabled**.

## ▶Super IO Configuration

**Super IO Chip:** This item displays the Super IO chip used in the serverboard.

## ▶Serial Port 1 Configuration

**Serial Port**

Select Enabled to enable a serial port specified by the user. The options are **Enabled** and Disabled.

**Device Settings**

This feature indicates whether or not a reset is required for a serial port specified.

**Change Settings**

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 1 and Serial Port 2. The options for Serial Port 1 are: **Auto**, IO=3F8h; IRQ=4; IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; and IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12.

## ▶Serial Port 2 Configuration

**Serial Port**

Select Enabled to enable a serial port specified by the user. The options are **Enabled** and Disabled.

**Device Settings**

This item displays the settings of Serial Port 2.

**Change Settings**

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 1 and Serial Port 2. The options for Serial Port 2 are: **Auto**, IO=2F8h; IRQ=3; IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; and IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12.

**Serial Port 2 Attribute**

Use this feature to select the attribute for serial port 2. The options are **SOL** (Serial On LAN), and COM.

## ▶Serial Port Console Redirection

- **COM 1 and SOL/COM 2**

These two submenus allow the user to configure the following Console Redirection settings for a COM Port selected by the user.

**Console Redirection**

Select Enabled to use a COM Port selected by the user for Console Redirection. The options are Enabled and Disabled. The default setting for COM1 is **Disabled**, and for COM2 is **Enabled**.

## ▶Console Redirection Settings

This feature allows the user to specify how the host computer will exchange data with the client computer, which is the remote computer used by the user.

**Terminal Type**

This feature allows the user to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII Character set. Select VT100+ to add color and function key support. Select ANSI to use the Extended ASCII Character Set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are ANSI, VT100, **VT100+**, and VT-UTF8.

**Bits Per second**

Use this feature to set the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 57600 and **115200** (bits per second).

**Data Bits**

Use this feature to set the data transmission size for Console Redirection. The options are 7 Bits and **8 Bits**.

**Parity**

A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits is even. Select Odd if the parity bit is set to 0, and the number of 1's in data bits is odd. Select None if you do not want to send a parity bit with your data bits in transmission. Select Mark to add a mark as a parity bit to be sent along with the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark and Space.

**Stop Bits**

A stop bit indicates the end of a serial data packet. Select 1 Stop Bit for standard serial data communication. Select 2 Stop Bits if slower devices are used. The options are **1** and 2.

**Flow Control**

This feature allows the user to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None** and Hardware RTS/CTS.

**VT-UTF8 Combo Key Support**

Select Enabled to enable VT-UTF8 Combination Key support for ANSI/VT100 terminals. The options are **Enabled** and Disabled.

**Recorder Mode**

Select Enabled to capture the data displayed on a terminal and send it as text messages to a remote server. The options are **Disabled** and Enabled.

**Resolution 100x31**

Select Enabled for extended-terminal resolution support. The options are Disabled and **Enabled**.

**Legacy OS Redirection**

Use this feature to select the number of rows and columns used in Console Redirection for legacy OS support. The options are 80x24 and **80x25**.

**Putty KeyPad**

This feature selects Function Keys and KeyPad settings for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, Linux, XTERMR6, SC0, ESCN, and VT400.

**▶Serial Port for Out-of-Band Management/Windows Emergency Management Services (EMS)**

The submenu allows the user to configure Console Redirection settings to support Out-of-Band Serial Port management. The options are **Enabled** and Disabled.

**Console Redirection Settings**

The feature allows the user to configure console redirection settings for a local machine to communicate with a remote server.

## ▶ACPI Setting

Use this feature to configure Advanced Configuration and Power Interface (ACPI) power management settings for your system.

**ACPI Sleep State**

Use this feature to select the ACPI State when the system is in sleep mode. Select S1 (CPU_Stop_Clock) to erase all CPU caches and stop executing instructions. Power to the CPU(s) and RAM is maintained, but RAM is refreshed. Select Suspend to use power-reduced mode. Power will only be supplied to limited components (such as RAMs) to maintain the most critical functions of the system. The options are **S1 (CPU_Stop_Clock)**, Suspend and Disabled.

**High Precision Event Timer**

Select Enabled to activate the High Precision Event Timer (HPET) that produces periodic interrupts at a much higher frequency than a Real-time Clock (RTC) does in synchronizing multimedia streams, providing smooth playback, reducing the dependency on other timestamp calculation devices, such as an x86 RDTSC Instruction embedded in the CPU. The High Performance Event Timer is used to replace the 8254 Programmable Interval Timer. The options are **Enabled** and Disabled.

## ▶Trusted Computing (Available when a TPM device is detected by the BIOS)

**Configuration**

**TPM Support**

Select Enabled on this item and enable the TPM jumper on the serverboard to enable TPM support to improve data integrity and network security. The options are **Enabled** and Disabled.

**TPM State**

Select Enabled to enable TPM security settings to improve data integrity and network security. The options are **Disabled** and Enabled.

**Pending Operation:** This item displays the status of a pending operation.

**Current Status Information:** This item displays the information regarding the current TPM status.

## TPM Enable Status

This item displays the status of TPM Support to indicate if TPM is currently enabled or disabled.

**TPM Active Status**

This item displays the status of TPM Support to indicate if TPM is currently active or deactivated.

**TPM Owner Status**

This item displays the status of TPM Ownership.

## ▶Intel TXT (LT-SX) Configuration

**Intel TXT (LT-SX) Hardware Support**

This feature indicates if the following hardware components support the Intel Trusted Execution Technology.

**CPU**: TXT (Trusted Execution Technology) Feature

**Chipset**: TXT (Trusted Execution Technology) Feature

**Intel TXT (LT-SX) Configuration**

This feature displays the following TXT configuration setting.

**TXT (LT-SX) Support:** This item indicated if the Intel TXT support is enabled or disabled.

**Intel TXT (LT-SX) Dependencies**

This feature displays the features that need to be enabled for the Intel Trusted Execution Technology to work properly in the system.

**VT-d Support**: Intel Virtualization Technology with Direct I/O support

**VT Support**: Intel Virtualization Technology support

**TPM Support**: Trusted Platform support

**TPM State**: Trusted Platform state

## ▶Intel ME Subsystem Configuration

This feature displays the following ME Subsystem Configuration settings.

- **ME BIOS Interface Version**
- **ME Version**

**iSCSI Configuration:** This item displays iSCSI configuration information:

**iSCSI Initiation Name**: This item displays the name of the iSCSI Initiator, which is a unique name used in the world.

### ▶Add an Attempt

### ▶Delete Attempts

#### ▶Commit Changes and Exit

Save the changes and exit from the page.

#### ▶Discard Changes and Exit

Discard the changes and exit from the page.

### ▶Change Attempt Order

### ▶Commit Changes and Exit

Save the changes and exit from the page.

### ▶Discard Changes and Exit

Discard the changes and exit from the page.

**Intel® I350 Gigabit Network Connections**: These items display the following information on the Intel I350 LAN connections.

**Port Configuration Menu**

### ▶NIC Configuration

**Link Speed**

This item allows the user to set the link speed for your network connections. The Options are **AutoNeg (Auto Negotiation)**, 10 Mbps Half, 10 Mbps Full, 100 Mbps Half, and 10 Mbps Full.

**Wake On LAN (WOL)**

Select Enabled to wake up the system with a device (a magic packet). The options are Disabled and **Enabled**.

**Blink LEDs (Range 0~15 seconds)**

This item sets the duration of blinking for NIC LEDs. The range of duration is from 0 second to 15 seconds. The default setting is **0** second.

**Port Configuration Information**

This menu displays the following information for a NIC port specified.

- UEFI Driver
- Adapter PBA
- Chip Type
- PCI Device ID
- PCI Bus: Device: Function:
- Link Status: This item displays the link status of network connections.
- Factory MAC Address
- Alternate MAC Address

## 7-3 Event Logs

Use this feature to configure Event Log settings.

### ▶Change SMBIOS Event Log Settings

This feature allows the user to configure SMBIOS Event settings.

**Enabling/Disabling Options**

**SMBIOS Event Log**

Select Enabled to enable SMBIOS (System Management BIOS) Event Logging during system boot. The options are **Enabled** and Disabled.

**Runtime Error Logging Support**

Select Enabled to support Runtime Error Logging. The options are **Enabled** and Disabled.

**Memory Correctable Error Threshold**

This feature allows the user to enter the threshold value for correctable memory errors. The default setting is **10**.

**PCI Error Logging Support**

Select Enabled to support error event logging for PCI slots. The options are Enabled and **Disabled**.

**Erasing Settings**

**Erase Event Log**

Select Enabled to erase the SMBIOS (System Management BIOS) Event Log, which is completed before a event logging is initialized upon system reboot. The options are **No**; Yes, next Reset; and Yes, every reset.

**When Log is Full**

Select Erase Immediately to immediately erase SMBIOS error event logs that exceed the limit when the SMBIOS event log is full. Select Do Nothing for the system to do nothing when the SMBIOS event log is full. The options are **Do Nothing** and Erase Immediately.

**SMBIOS Event Log Standard Settings**

**Log System Boot Event**

Select Enabled to log system boot events. The options are **Disabled** and Enabled.

**MECI (Multiple Event Count Increment)**

Enter the increment value for the multiple event counter. Enter a number between 1 to 255. The default setting is **1**.

**METW (Multiple Event Count Time Window)**

This item allows the user to decide how long (in minutes) should the multiple event counter wait before generating a new event log. Enter a number between 0 to 99. The default setting is **60**.

**View SMBIOS Event Log**

This item allows the user to view the event in the SMBIOS event log. Select this item and press <Enter> to view the status of an event in the log as shown below:

Date/Time/Error Code/Severity

**View System Event Log**

This item allows the user to view the event in the system event log. Select this item and press <Enter> to view the status of an event in the log as shown below:

Date/Time/Sensor/Type

## 7-4 IPMI

Use this feature to configure Intelligent Platform Management Interface (IPMI) settings.

**IPMI Firmware Revision**

This item indicates the IPMI firmware revision used in your system.

**IPMI Status**

This item indicates the status of the IPMI firmware installed in your system.

### ▶System Event Log

**Enabling/Disabling Options**

**SEL Components**

Select Enabled for all system event logging at bootup. The options are **Enabled** and Disabled.

**Erasing Settings**

**Erase SEL**

Select Yes, On next reset to erase all system event logs upon next system reboot. Select Yes, On every reset to erase all system event logs upon each system reboot. Select No to keep all system event logs after each system reboot. The options are **No,** Yes, On next reset, and Yes, On every reset.

**When SEL is Full**

This feature allows the user to decide what the BIOS should do when the system event log is full. Select Erase Immediately to erase all events in the log when the system event log is full. The options are **Do Nothing** and Erase Immediately.

**Customize EFI Logging Options**

**Log EFI Status Codes**

Select Enabled to log EFI (Extensible Firmware Interface) Status Codes, Error Codes or Progress Codes. The options are **Enabled** and Disabled.

**Note**: After making changes on a setting, be sure to reboot the system for the changes to take effect.

## ▶BMC Network Configuration

**LAN Channel 1**: This feature allows the user to configure the settings for LAN1 Port.

**Update IPMI LAN Configuration**

This feature allows the user to decide if the BIOS should configure the IPMI setting at next system boot. The options are **No** and Yes. If the option is set to Yes, BIOS will configure the following settings to IPMI at next system boot:

**Configuration Address Source**

This feature allows the user to select the source of the IP address for this computer. If Static is selected, you will need to know the IP address of this computer and enter it to the system manually in the field. If DHCP is selected, the BIOS will search for a DHCP (Dynamic Host Configuration Protocol) server in the network that is attached to and request the next available IP address for this computer. The options are **DHCP** and Static. The following items are assigned IP addresses automatically if DHCP is selected.

**Station IP Address**

This item displays the Station IP address for this computer. This should be in decimal and in dotted quad form (i.e., 192.168.10.253).

Subnet Mask

This item displays the sub-network that this computer belongs to. The value of each three-digit number separated by dots should not exceed 255.

**Station MAC Address**

This item displays the Station Mac address for this computer. Mac addresses are 6 two-digit hexadecimal numbers.

**Gateway IP Address**

This item displays the Gateway IP address for this computer. This should be in decimal and in dotted quad form (i.e., 192.168.10.253).

## 7-5 Boot

This submenu allows the user to configure the following boot settings for the system.

**CSM Support**

Select Enabled to support the EFI Compatibility Support Module (CSM), which provides compatibility support for traditional legacy BIOS for system boot. The options are **Enabled**, Disabled and Auto.

**Boot Option Priorities**

**Boot Option #1~ Boot Option #4**

This item allows the user to select the first boot drive. Select a LAN device to boot the system from the network connection. Select UEFI to boot the system from the UEFI: Built-in EFI Shell. The options are LAN Device, UEFI: Built-in EFI Shell, and Disabled.

**USB Device BBS Priorities**

**Hard Disk Drives**

**Boot Option #1~ Boot Option #3**

This item displays the first boot device.

**Network Drives**

**Boot Option #1**

This item displays the first boot device.

### ▶Delete Boot Options

**Delete Boot Option**

This item allows the user to select a boot device to delete from the boot priority list. Select UEFI: Built-in EFI Shell to delete it from the boot priority list which will prevent system boot from the UEFI Shell. The options are Select One to Delete and **UEFI: Built-in EFI Shell**.

## 7-6 Security

This menu allows the user to configure the following security settings for the system.

**Administrator Password**

Use this feature to set the Administrator Password which is required to enter the BIOS setup utility. The length of the password should be from 3 characters to 20 characters long.

**User Password**

Use this feature to set a User Password which is required to log into the system and to enter the BIOS setup utility. The length of the password should be from 3 characters to 20 characters long.

## 7-7 Save & Exit

This submenu allows the user to configure the Save and Exit settings for the system.

**Discard Changes and Exit**

Select this option to quit the BIOS Setup without making any permanent changes to the system configuration, and reboot the computer. Select Discard Changes and Exit, and press <Enter>. When the dialog box appears, asking you if you want to exit the BIOS setup without saving, click **Yes** to quit BIOS without saving the changes, or click No to quit the BIOS and save changes.

**Save Changes and Reset**

When you have completed the system configuration changes, select this option to save the changes and reboot the computer so that the new system configuration settings can take effect. Select Save Changes and Exit, and press <Enter>. When the dialog box appears, asking you if you want to exit the BIOS setup without saving, click **Yes** to quit BIOS without saving the changes, or click No to quit the BIOS and save changes.

**Save Options**

**Save Changes**

Select this option and press <Enter> to save all changes you've done so far and return to the AMI BIOS utility Program. When the dialog box appears, asking you if you want to save configuration, click **Yes** to save the changes, or click No to return to the BIOS without making changes.

**Discard Changes**

Select this feature and press <Enter> to discard all the changes and return to the BIOS setup. When the dialog box appears, asking you if you want to load previous values, click **Yes** to load the values previous saved, or click No to keep the changes you've made so far.

**Restore Optimized Defaults**

Select this feature and press <Enter> to load the optimized default settings that help optimize system performance. When the dialog box appears, asking you if you want to load optimized defaults, click **Yes** to load the optimized default settings, or click No to abandon optimized defaults.

**Save as User Defaults**

Select this feature and press <Enter> to save the current settings as the user's defaults. When the dialog box appears, asking you if you want to save values as user's defaults, click **Yes** to save the current values as user's default settings, or click No to keep the defaults previously saved as the user's defaults.

**Restore User Defaults**

Select this feature and press <Enter> to load the user's defaults previously saved in the system. When the dialog box appears, asking you if you want to restore user's defaults, click **Yes** to restore the user's defaults previously saved in the system, or click No to abandon the user's defaults that were previously saved.

**Boot Override**

This feature allows the user to temporarily override the original boot order and boot the system to a selected device immediately:

- LAN Device
- UEFI: Built-in EFI Shell

# Appendix A

# BIOS Error Beep Codes

During the POST (Power-On Self-Test) routines, which are performed each time the system is powered on, errors may occur.

**Non-fatal errors** are those which, in most cases, allow the system to continue the boot-up process. The error messages normally appear on the screen.

**Fatal errors** are those which will not allow the system to continue the boot-up procedure. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The numbers on the fatal error list (on the following page) correspond to the number of beeps for the corresponding error. All errors listed, with the exception of Beep Code 8, are fatal errors.

## A-1 AMIBIOS Error Beep Codes

| Beep Code | Error Message | Description |
|---|---|---|
| 1 beep | Refresh | Circuits have been reset (Ready to power up) |
| 5 short beeps and 1 long beep | Memory error | No memory detected in the system |
| 5 beeps | No Con-In or No Con-Out devices | Con-In: USB or PS/2 keyboard, PCI or Serial Console Redirection, IPMI KVM or SOL<br><br>Con-Out: Video Controller, PCI or Serial Console Redirection, IPMI SOL |
| 1 beep per device | Refresh | 1 beep for each USB device |
| | | |
| **X9 IPMI Error Codes** | | |
| 1 continuous beep | System overheat | System overheat |

## Notes

# Appendix B

# System Specifications

### Processors

Dual Intel E5-2600 series (Socket R LGA 2011 type) processors

Note: You must install at least two processors for full functions to be supported.

**Note:** Please refer to our web site for a complete listing of supported processors.

### Chipset

One Intel PCH C602 chipset

### BIOS

16 Mb AMI BIOS® Flash EPROM

### Memory Capacity

The X9DRW-iF has sixteen (16) single/dual/tri/quad channel 240-pin DIMM sockets that can support up to 512 GB of DDR3 1600/1333/1066/800 MHz speed registered ECC RDIMM/LRDIMM SDRAM in two-channel memory bus. Memory sizes of 512 MB, 1 GB, 2 GB, 4 GB, 8 GB, 16 GB or 32 GB size @ 1.35V/1.5V voltages are supported.

Note: See the memory section in Chapter 5 for details.

### SATA Controller

Intel PCH C602 on-chip controller for six-port Serial ATA (RAID 0, 1, 5 and 10 for Windows or RAID 0, 1 and 10 for LINUX supported)

### Drive Bays

The SC113 chassis has eight (8) hot-swap drive bays to house up to eight SATA drives

### Peripheral Drive Bays

One (1) optional slim DVD-ROM drive (not included with SuperServer 1027R-WRF

### Expansion Slots

Left side: two full height 6.6" length PCI-E 3.0 x16 cards

### Serverboard

X9DRW-iF (Proprietary form factor)
Dimensions: (LxW) 13.05 x 12.29 in. (331.47 x 312.17 mm)

### Chassis

SC113TQ-R700WB (1U rackmount form factor)
Dimensions: (WxHxD) 17.2 x 1.7 x 23.5 in. (437 x 43 x 597 mm)

### Weight

Gross (Bare Bone): 33 lbs. (15 kg.)

### System Cooling

The SuperServer 1027R-WRF has five (5) 4-cm system cooling fans

### System Input Requirements

AC Input Voltage: 100-240 VAC
Rated Input Current: 8.3A (100V) to 3.8A (240V)
Rated Input Frequency: 60-50 Hz

Platinum: 90+ (Platinum Level)

### Power Supply

Rated Output Power: 700 Watt (Model# PWS-704P-1R)
Rated Output Voltages: +12V (12A), +5Vsb (5A)

### Operating Environment

Operating Temperature: 5º to 35º C (41º to 95º F)
Non-operating Temperature: -40º to 60º C (40º to 140º F)
Operating Relative Humidity: 8% to 90% (non-condensing)
Non-operating Relative Humidity: 5 to 95% (non-condensing)

### Regulatory Compliance

Electromagnetic Emissions: FCC Class A, EN 55022 Class A, EN 61000-3-2/-3-3, CISPR 22 Class A

Electromagnetic Immunity: EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)

Safety: CSA/EN/IEC/UL 60950-1 Compliant, UL or CSA Listed (USA and Canada), CE Marking (Europe)

California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. “Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate”

(continued from front)

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